FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

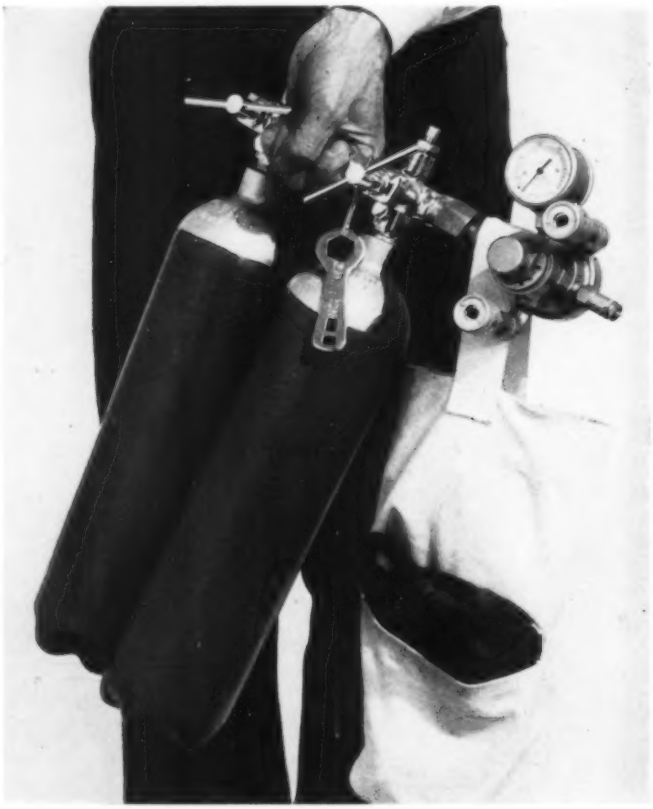
SEPTEMBER, 1948

losion at Reno, Nev., Fire Kills Five
d Injures Many Others. This photo-
aph was taken a few seconds after
st. (See article in this issue.)

OHIO STATE
UNIVERSITY
SEP 21 1948
LIBRA

A CASE SHEPPARD MANN PUBLICATION

PORTABLE??



This Utility Model Emerson Resuscitator weighs *just 28 pounds* as shown

and gives a patient 1 hour and 25 minutes of resuscitation. Originally designed for Army and Navy requirements, it is now redesigned for emergency and medical use, and is offered SINGLE, DUAL, TRIPLE or QUADRUPLE.

By having a separate aspirator for each patient, along with the standard, full-sized Emerson mechanism, you can treat each case independently, even at the end of a 50 or 100-foot extension hose. A quadruple set-up (as used 3 years by a famous West Coast disaster unit) employs a large cylinder fitted with a manifold. You could have a manifold for up to 10 patients. But we recommend dual units—for mobility, distribution, and avoidance of confusion.

NEW EMERSON UTILITY

"Simplest and Safest"

STANDARD EMERSON PORTABLE

See us at Miami, or have our representative demonstrate at your station.

J. H. EMERSON CO.

22 Cottage Park Avenue
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PENETRATION

Safety depends on signal penetration—the power to reach and alert those in your path.

Federal Sirens assure that safety—audibly and visually; clear-cut, penetrating tones that knife their way through densest traffic—sweeping, rotating red blades of light that command instant attention, this dual-action of light with sound means fast *re-action* to your signal. Federal Sirens with the famous Propello-Ray light give the most effective, penetrating signal protection yet developed.

To assure your vehicles the safest traffic penetration—

***Specify* FEDERAL SIRENS**

FEDERAL ENTERPRISES, INC.

formerly FEDERAL ELECTRIC COMPANY, INC.

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

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FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

It's Anniversary Time!

IN November, the International Association of Fire Chiefs holds its Diamond Jubilee Convention in Miami, Florida!

● Next month — October — FIRE ENGINEERING chalks up its 71st anniversary as the "Journal of the Fire Service".

● For over 70 years this publication has devoted the editorial and advertising sections of its "Convention Issues" to chronicling world progress in fire protection and prevention (men, methods and material) and to forecasting what's to come.

● Every year, FIRE ENGINEERING has been an inspiration at the I. A. F. C. gatherings — as well as a "convention in print" to those unfortunates who could not attend the International gathering! That is why these "convention numbers" of FIRE ENGINEERING are so cherished.

● This year's Diamond Jubilee Convention (October) number of FIRE ENGINEERING will be no exception. Just as an appetizer, here are some of its editorial highlights: "Motor Apparatus Survey" (present condition of fire apparatus and equipment); "Atomic Energy and the Fire Service" (a peep into a doubtful and disturbing future); "What's New in Fire Service Communications?" (with heavy emphasis on radio); "More About Much - Discussed 'Wet Water'"; "What's Going to Happen to Civilian Defense?"

● Complimenting the meaty editorial content of this super-book, the nation's leading makers of apparatus and equipment will tell what is new and better in their field!

● Small wonder that so many readers of FIRE ENGINEERING vow that its annual "Convention" issue alone is worth the entire cost of their year's subscription!

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price: U. S., Latin America and Canada, $3.00 a year; Foreign, $4.00; Single copies, 35c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879.

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"Specialized Leadership"

MACK ★ MODERN DESIGN

IS MORE THAN SKIN DEEP!

Newest Mack to be put in service by Billerica, Mass., this Type 45, coupe-cab 500-gallon pumper stands out as an example of modern fire apparatus design.

★ True modern design in fire apparatus is more than outward appearance. It calls for sufficient margins of strength and capacity to meet all possible demands . . . highest performance, both on the road and at the fire . . . quick and easy accessibility of all controls and equipment . . . and the greatest measure of personnel protection and safety.

Mack fire apparatus meets these qualifications in the fullest degree. Products of the greatest engineering and manufacturing facilities in the industry, Mack firefighters in every classification are designed to provide matchless performance, efficiency and safety. No other manufacturer but Mack builds so many of its own components in its own factories — your assurance that Mack modern design pays off in long-lasting, full-rated service.

Over 1,000 communities regard Macks as the finest in firefighting equipment, built to best meet problems of tomorrow as well as today. When planning your next purchase of fire apparatus, *Modernize with Macks* for the fullest investment in advanced-design protection.

Mack
FIRE APPARATUS

MACK MANUFACTURING CORP.
Fire Apparatus Division
Long Island City 1, N. Y.

Factory branches and dealers for service and parts in all principal cities. In Canada, Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS — 500 TO 1500 GALLONS . . . SQUAD WAGONS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

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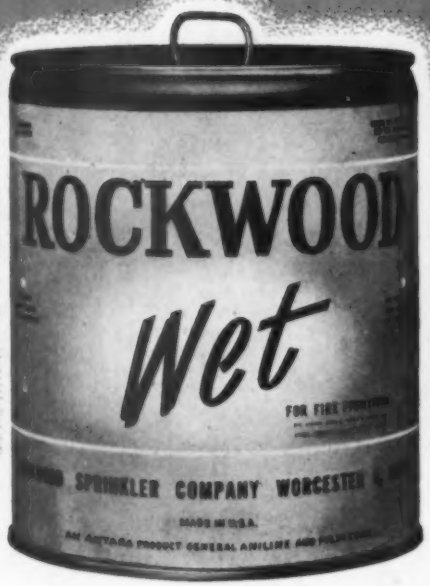


A NEW WETTING LIQUID and NEW EQUIPMENT FOR AUTOMATICALLY FEEDING IT INTO FIRE HOSE LINES

Two newsworthy Rockwood developments are now being presented *hand-in-hand* to the fire departments of the country.

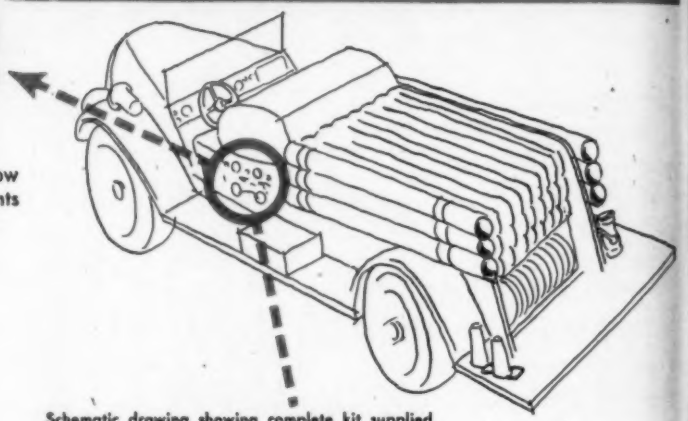
1. Rockwood WET — a new wetting liquid prepared specially for fire fighting. It will increase the fire extinguishing action of water thus making a little water go a long way.

2. Rockwood Automatic equipment for feeding Rockwood WET into your fire hose lines on your fire trucks. This is known as the Rockwood PROPORTIONER (across pump Dual A model). This new PROPORTIONER can also be used to automatically feed Rockwood mechanical foam liquid to your hose lines similar to the method used in proportioning the wetting liquid.

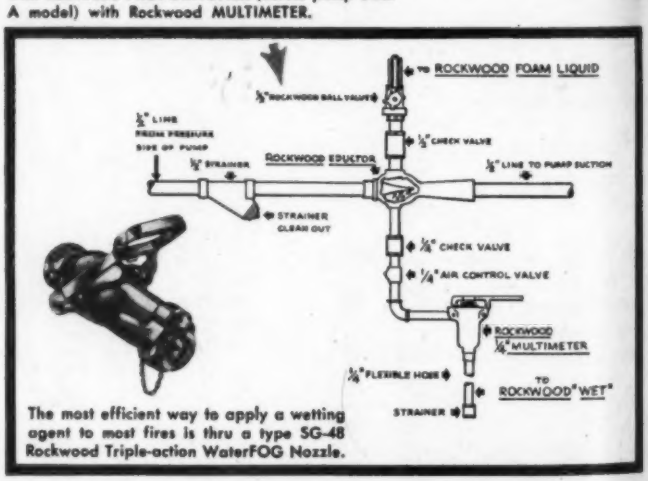
This combination of Rockwood WET and our new Automatic dual PROPORTIONER will help improve the fire fighting efficiency of your fire department. It will retain its remarkable penetrating action even at fire temperatures.

The new Rockwood PROPORTIONER handles wetting liquids efficiently and quickly.

Write for complete descriptive literature and prices.



Schematic drawing showing complete kit supplied with Rockwood PROPORTIONER (across pump Dual A model) with Rockwood MULTIMETER.



The most efficient way to apply a wetting agent to most fires is thru a type SG-48 Rockwood Triple-action WaterFOG Nozzle.

ROCKWOOD

ROCKWOOD SPRINKLER COMPANY

54 HARLOW STREET WORCESTER 5, MASSACHUSETTS

Specialists in Fire Protection Engineering, Equipment and Installation since 1907

This hose is "heavy artillery"—yet lighter!

NEW B. F. Goodrich municipal fire hose is a hose for the heaviest duty, highest pressures, maximum water volume for its outer diameter. Yet this heavy duty hose is actually *lighter* than ordinary fire hose. Stronger tube, jacket and coupling combine to make a hose that's lighter, more flexible and easy-handling. Here's how it's done.

Weight-saving tube — Rubber compounding for increased strength gives a thinner tube, with I.D.s 1/32" to 1/16" larger than ordinary fire hose. This lighter tube has 20% greater water capacity than ordinary fire hose. Coupled ends reinforced with a network of hard cotton cords prevent tube cracking near the coupling. Aging ingredients make the tube last longer. Smoother surface inside tube reduces friction loss, gives maximum nozzle output. B. F. Goodrich-developed flat cure makes this hose easy to rack and handle.

Weight-saving jacket — To give more strength with less bulk and weight, the jacket is woven of more smaller-gauge cords, in place of fewer, heavier cords. The cords are prestretched and woven under uniform tension to eliminate weak spots. B. F. Goodrich Hydroseal treatment protects the jacket from freezing, waterlogging, mildew and rotting.

All types of coupling—B. F. Goodrich fire hose is available with all standard couplings. Koroseal swivel gaskets speed coupling time. They require no spanner to make a watertight seal. Couplings can be spun on hydrant and tightened by hand.

To cut weight from your hose line and speed your hose company's attack on fire, ask your B. F. Goodrich distributor to show you this new municipal fire hose. See your local distributor or write: *The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

B.F.Goodrich
RUBBER FOR INDUSTRY

The Original MIDWESTERN Yellow Striped Safety Coat Is Again Available . . .

for Men of Action!

Here's Protection and Comfort in Your Hazardous Work of Safeguarding Life and Property Against FIRE!

Modern fire fighting calls for ***specialized*** protective clothing . . . clothing that safeguards the fireman's life on every run . . . clothing that enables him to use his equipment to the fullest advantage.

Every Midwestern product combines the thoughts and suggestions of practical Fire Chiefs and firemen from every section of the country . . . and every purchaser profits from years of Midwestern research and experience. That is why the famous Mackinaw Coat and other Midwestern clothing have embodied in their design every feature necessary for the protection and comfort of firemen.

In our vast selection of crude rubber materials you will find a type of fabric suitable for your climate and needs. The softness and flexibility in the high-grade materials used are your assurance of long time service and comfort. Many Fire Chiefs are now including Midwestern clothing in their regular yearly budget and, by placing your order early, you can be assured of this adequate protection when needed.

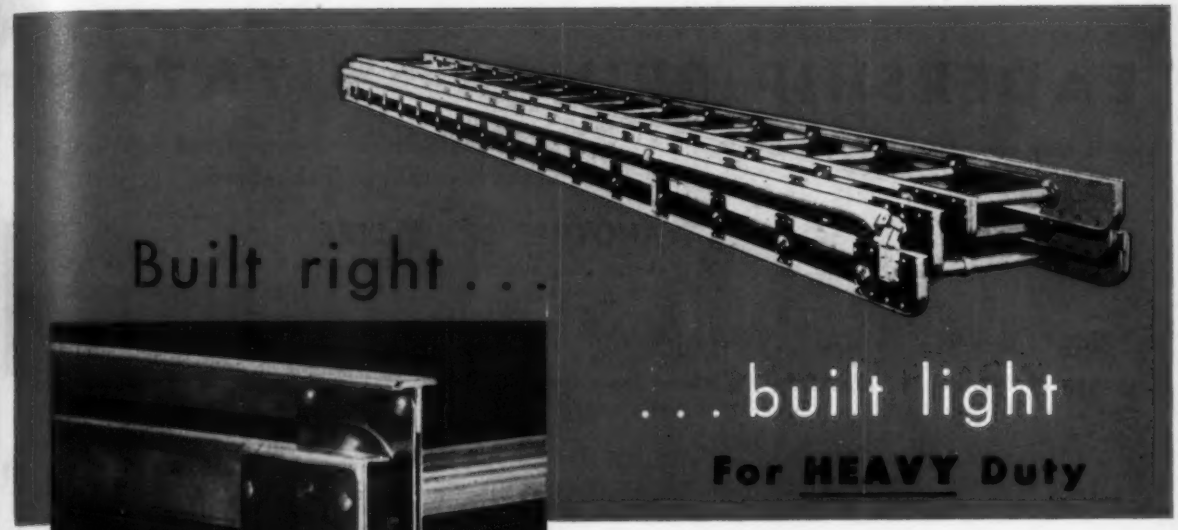
For complete information, have your Midwestern dealer show you our new garments now manufactured from crude rubber compounds. A letter to the factory will also bring you material samples for your inspection.

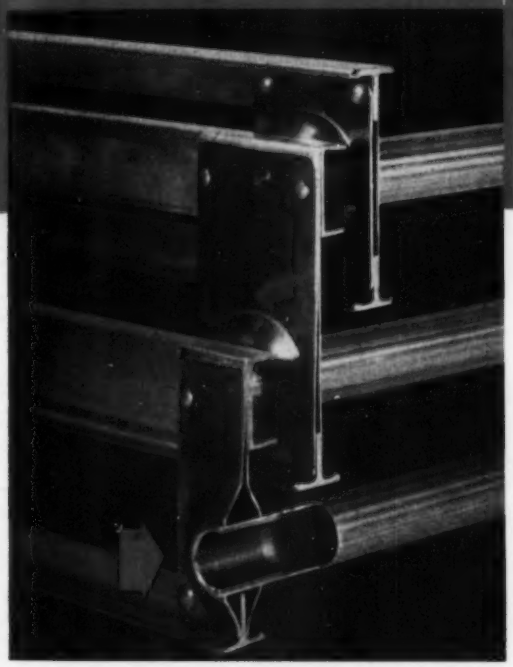
We now have available: White, Ivory and Brown crude rubber coats for Chiefs, Assistants and other officers; also all sizes short and ¼ length felt lined Firemen's boots for immediate shipment.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN MFG. CO., Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Coats**





This *unretouched* cross-section photo of the popular Type 3 EL Heavy Duty Extension Ladder shows how sound engineering principles can make the most of aluminum's twin characteristics, *strength* and *lightness*. Stringers are made of rigid aluminum alloy channels and T-sections, braced at the rungs by double heavy riveted plates. The corrugated rungs are secured in flanged seats by means of aluminum expansion bushings. (See split-section view at red arrow.) This exclusive feature prevents for all time loosening or breakage of the rungs.

Besides the three-section ladder shown here, *original* Heavy Duty Extension Ladders come in two and four sections. A wide range of sizes assures you of getting *exactly* the right ladder to suit your requirements. Be sure to get *original* aluminum fire ladders, built by the Aluminum Ladder Co., leader in the field since 1936.

ALUMINUM
LADDER
COMPANY

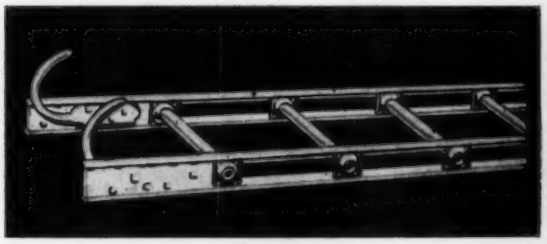
200 CARBIS STREET WORTHINGTON, PA.

ORIGINAL MANUFACTURERS OF ALUMINUM LADDERS

Aluminum fire ladders are built RIGHT . . . built of high tensile strength aluminum alloy for years of dependable, rugged service. They won't deteriorate because they are rust-proof, spark-proof, rot-proof and fire-proof. Careful design and construction give you a wide margin of safety at all times.

Aluminum fire ladders are built LIGHT. Stronger than wooden ladders, they weigh only half as much . . . can be extended and handled more easily with fewer men. Here is fast action where it's needed, a big safety factor in itself.

Only *original* aluminum fire ladders give you RIGHT construction, RIGHT weight for safe, efficient fire fighting. Inquire now about *original* Heavy Duty Extension Ladders and other sturdy aluminum fire ladders.



Aluminum Roof Ladder

All-aluminum ladder construction with folding hooks of the finest forged steel. Perfect for bridging across hot floors or roofs. Sizes range from 12 ft. to 30 ft., 7 in. These roof ladders can be custom-built to your own specifications.

Aluminum Pike Pole

Handles are made from alloy aluminum tubing which will not break under strain. Hooks are of strong forged steel. Stocked in 8, 10, 12, 14 and 16-ft. lengths. Special lengths if desired.

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LEADERSHIP BRINGS IMITATORS

There is only one warning signal light that flashes a powerful figure "8" beam of red light—a mile ahead—from building line to building line and hundreds of feet in the air.

THERE ISN'T ANOTHER LIGHT LIKE

MARS SIGNAL LIGHT

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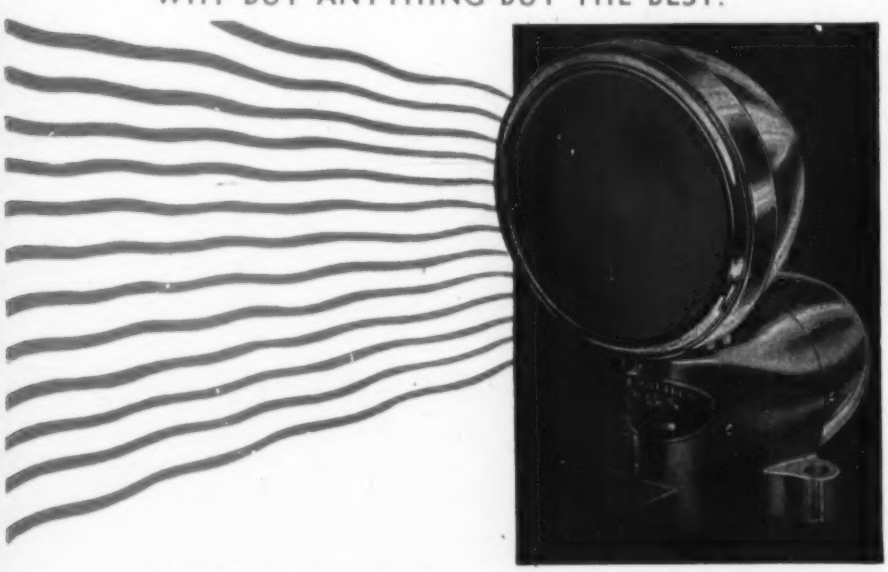
SO FAR AS WE KNOW ALL OF THEM ARE IN OPERATION AND ARE GIVING SATISFACTORY SERVICE

DON'T BE SATISFIED WITH AN IMITATION

INVEST IN A LIGHT THAT WILL LAST AS LONG AS YOUR APPARATUS

WHY BUY ANYTHING BUT THE BEST?



Mars Light Is Fully Guaranteed for Five Years
Mars Has Never Failed to Back Up This Guarantee and Never Will

WHEREVER SAFETY OF FIREMEN, APPARATUS AND THE PUBLIC IS THE FOREMOST CONSIDERATION YOU'LL FIND FIRE DEPARTMENTS USING AMERICA'S FOREMOST WARNING SIGNAL LIGHT

IMMEDIATE DELIVERY

MARS SIGNAL LIGHT CO. 5737 W. DIVISION ST. CHICAGO, ILL.

It's MARS from Coast to Coast

Insist on MARS when you order New Equipment
—Install it on Present Equipment.

ALSO USED BY MANY OF AMERICA'S LEADING RAILROADS

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Leading fire departments standardize on

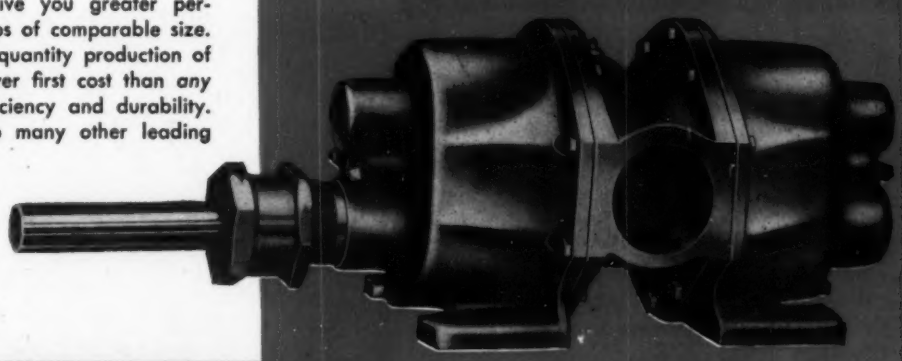
OBERDORFER

Booster Pumps

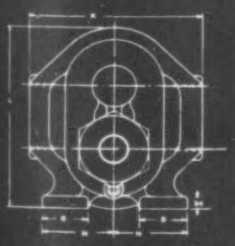
for efficiency, dependability and economy

Corrosion-resistant, *all-bronze construction* means Oberdorfer Booster Pumps last longer, need less service. Efficient design and perfect alemite lubrication mean they give you greater performance than most pumps of comparable size. Oberdorfer's tremendous quantity production of bronze pumps means lower first cost than *any* other make of equal efficiency and durability. Your department, like so many other leading departments, can save money and do a better job with Oberdorfer Booster Pumps. Write for complete details and name of your distributor.

OBERDORFER BRONZE
PUMP No. 26



SPECIFICATIONS – Oberdorfer Bronze Fire Pump No. 26

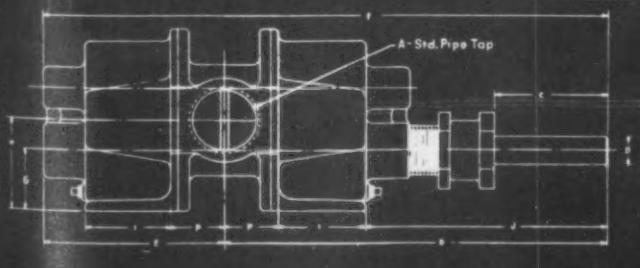


DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	1	4	13 1/16	6 11/64	19 3/8	2 1/8	3 1/4	2 21/32	8 3/32	6	6 1/2	7/16	2 1/2	1 3/8	1 53/64

PERFORMANCE DATA

Pump Shaft RPM	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
1600	120	500'—1½"	15'	150



LIST PRICE $172.50

For complete specifications of this and other Oberdorfer Fire Pumps and name of distributor, write—

Fire Pump Division OBERDORFER FOUNDRIES, INC. Syracuse 1, N. Y.

SOLVES THE PROBLEM OF FIRE SAFETY IN FUR STORAGE VAULTS...

ADT *Automatic Smoke Detection and Alarm Service*

No longer need there be danger of heavy damage from smoke or fire in fur storage vaults and similar high value enclosures.

ADT Automatic Smoke Detection and Alarm Service now provides a high degree of fire safety for such establishments by means of devices which detect the presence of smoke, automatically give an alarm and automatically close dampers and shut down fans.

Especially engineered and designed for protective purposes, these devices operate instantly whenever smoke intercepts a beam of light. Incipient fires are thus detected and reported, *often before there is any sign of heat or fire.*

Air ducts of air conditioning or other air circulating systems may be similarly protected through application of the same type of devices to provide ADT Automatic Fire and Smoke Control Service.

Continually dependable operation is assured by constant supervision, regular inspections and complete maintenance, provided through ADT Central Stations in principal cities of the United States.

Write for further information on this and other ADT Protection Services.

ADT

Controlled Companies of

AMERICAN DISTRICT TELEGRAPH CO.

155 SIXTH AVENUE NEW YORK 13, N. Y.

Central Station Offices in all Principal Cities of the United States

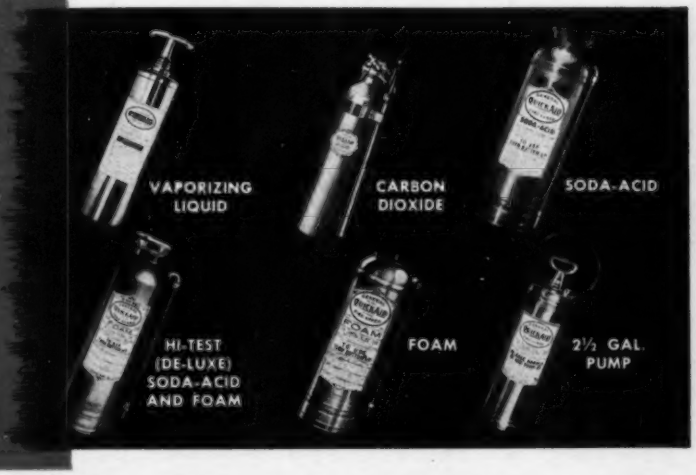
Have You Money to Burn?

NO SENSIBLE PERSON would burn *money*. Yet every year in the United States over $600,000,000 goes up in smoke.

You are already paying part of this bill in higher insurance rates. Yet you stand to lose much more if fire strikes *you*.

Loss of production time, loss of property that cannot be soon replaced, loss of standing in the business community, loss of life itself—these are losses that can never be repaid.

To guard against such losses, equip your home, car, boat, and place of business with QUICK AID Fire Extinguishers. There is a QUICK AID FIRE GUARD for every fire hazard. Consult your dealer or write for free copy of "Your Fire Protection Insurance Policy."



GENERAL QUICK AID FIRE GUARD

THE GENERAL DETROIT CORP.

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NEW YORK • PHILADELPHIA • ATLANTA • CHICAGO • DALLAS
Subsidiaries:
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LOS ANGELES • SAN FRANCISCO • SEATTLE
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WAR SURPLUS! FIRE EQUIPMENT

UNUSED MATERIAL AT UNBELIEVABLE VALUES

Clean Stock — Excellent Condition — Made By Top Name Manufacturers

SIAMESE

TWO-WAY BRASS LEADER LINE SIAMESE

2½" Female to Pair 1½" Males. Quick-Acting, Quarter Turn Valves.

@ $9.00 SPECIFY THREAD

ASBESTOS FIRE SUITS — Complete Coverage. Safety Crash Helmet. Pyrex Window. @ $8.50

FOAM NOZZLE — With Pick-Up Tube. Connects to Hose. Pulls Foam into Stream. @ $11.50

FOAM NOZZLE

FOAM LIQUID—5 Gal. Cans @ $5.00

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BRASS SHUT-OFF WITH PLAYPIPE

Ball Type Shut-Off with Tip. Playpipe Has Flat Leather, Swing Handles and Ladder Hook.

@ $19.50 FOR 2½" NST HOSE

OXYGEN BREATHING UNITS

Self-Generating Chemical Units. Set Has 7 New Canisters, Each Good for 1 Hour. Tools and Instruction Book.

Complete Set @ $31.50

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1½"	UNLINED LINEN	50' Lengths with Brass IPT Couplings — ULI. NST Couplings $2.00 extra.	@ $10.00
1½"	DOUBLE JACKET	50' Lengths with Any Brass Couplings Desired. New, Clean and Perfect.	@ $18.50
1½"	DOUBLE JACKET	50' Lengths with Brass IPT Couplings. New but Slightly Soiled.	@ $10.00

Above 1½" DOUBLE JACKET with NST CPLGS. @ $12.50

2½"	SINGLE JACKET	50' Lengths with NST Couplings. New, Clean and Perfect.	@ $25.00
1½"	RUBBER NEOPRENE	25' Lengths with Brass IPT Couplings. Heavy Wall Construction.	@ $12.50

RUBBER SUCTION HOSE

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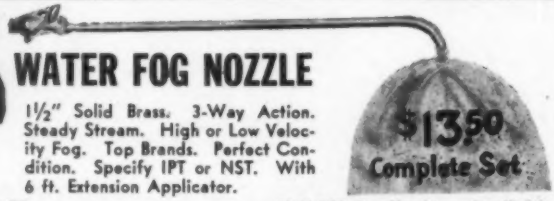
2½"	HARD SUCTION	25' Lengths with Brass NST Couplings. Heavy, Wire Reinforced.	@ $19.50
2½"	SOFT SUCTION	25' Lengths without Couplings. 8-Ply Wall—700 lb. Test.	@ $10.00

Above 2½" SOFT SUCTION with Brass IPT CPLGS. @ $13.50

4"	HARD SUCTION	10' Lengths with Iron IPT Nipples. Neoprene Wire Reinforced.	@ $16.00
4"	HARD SUCTION	25' Lengths with Various Connections. Neoprene Wire Reinforced.	@ $29.50

WE CAN ADAPT YOUR THREADING OR COUPLINGS IF NOT LISTED ABOVE



WATER FOG NOZZLE

1½" Solid Brass. 3-Way Action. Steady Stream. High or Low Velocity Fog. Top Brands. Perfect Condition. Specify IPT or NST. With 6 ft. Extension Applicator.

$13.50 Complete Set

Nozzles Alone @ $11.00 — 4'-6'-10' Applicators Available

Also 2½" NST Fog Nozzles, Brass, with 12' Applicator Set @ $19.50

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Heavy All Metal Construction. Wheel Height—48". Width—54". 500'—2½" S.J. Hose Capacity. Has Tool Box, Fire Axe and Rope.

Complete in 400 lbs. Case @ $39.50

300 Ft. Capacity Cart @ $21.50

Many Other Items at a Small Fraction of List—Write for Circulars

HALPRIN SUPPLY CO. 837 East 4th Place Los Angeles 13, Calif.

FULL FIRE PROTECTION for Airports

A JOHN BEAN AIRPORT SPECIAL on guard at Capital City Airport, Lansing, Michigan. Hundreds of these units have proved their dependability. 435 Gal. tank—60 G.P.M. Pump at 850 lbs. pump pressure—2 hose lines. 2¼-ton chassis.

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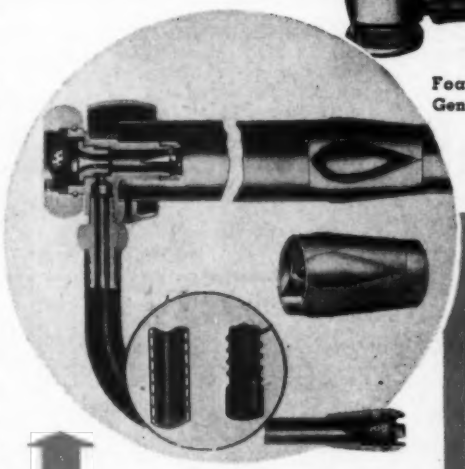

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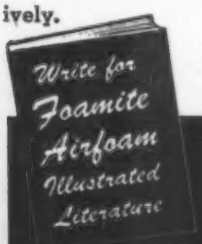

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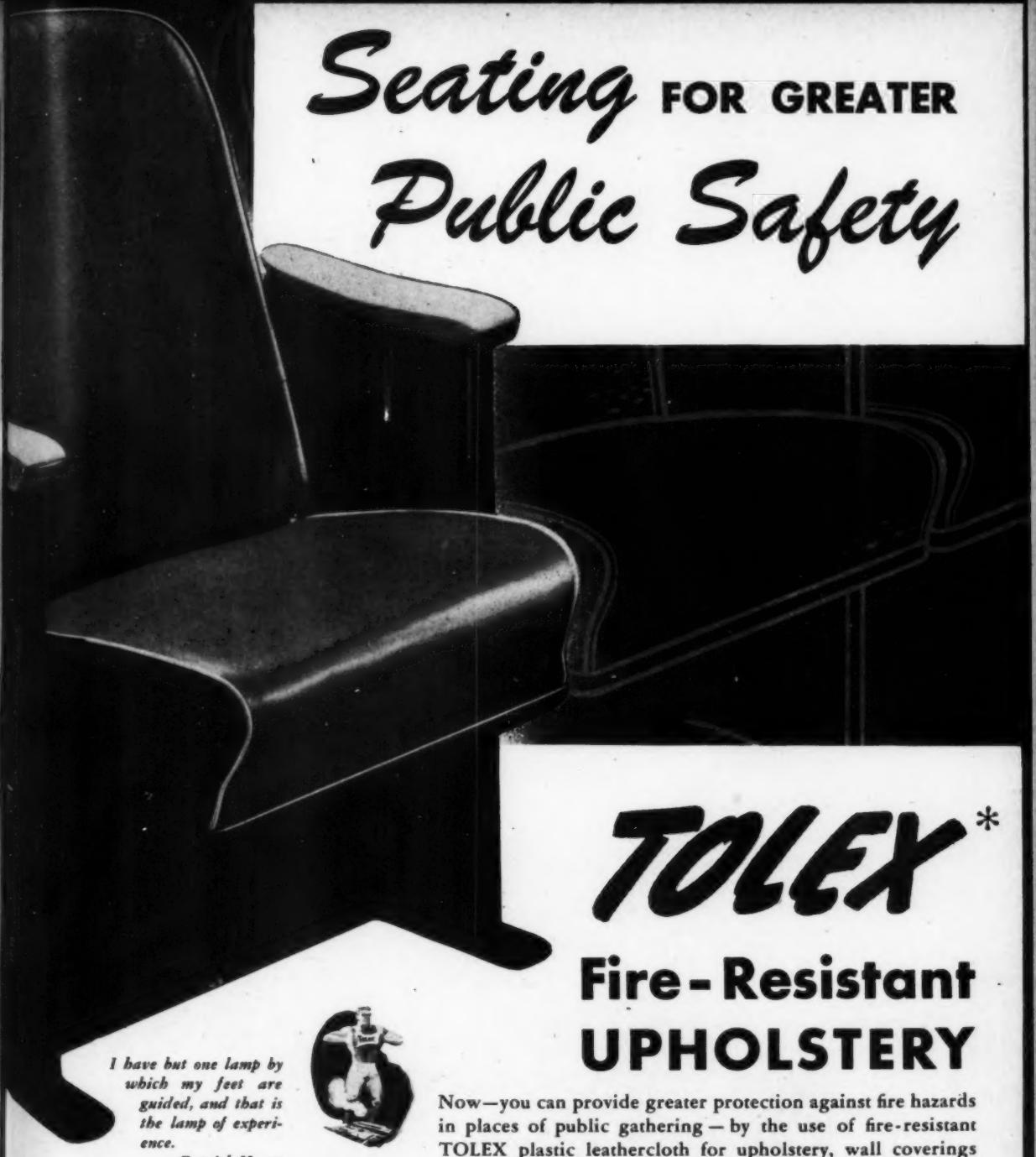

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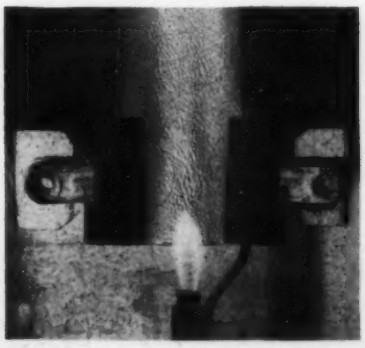

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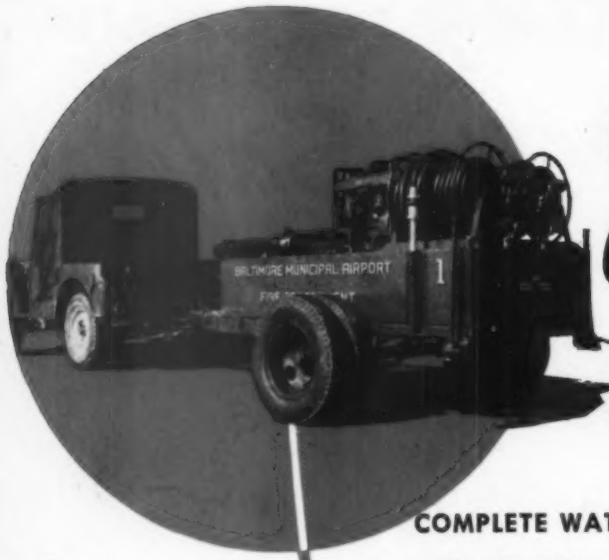

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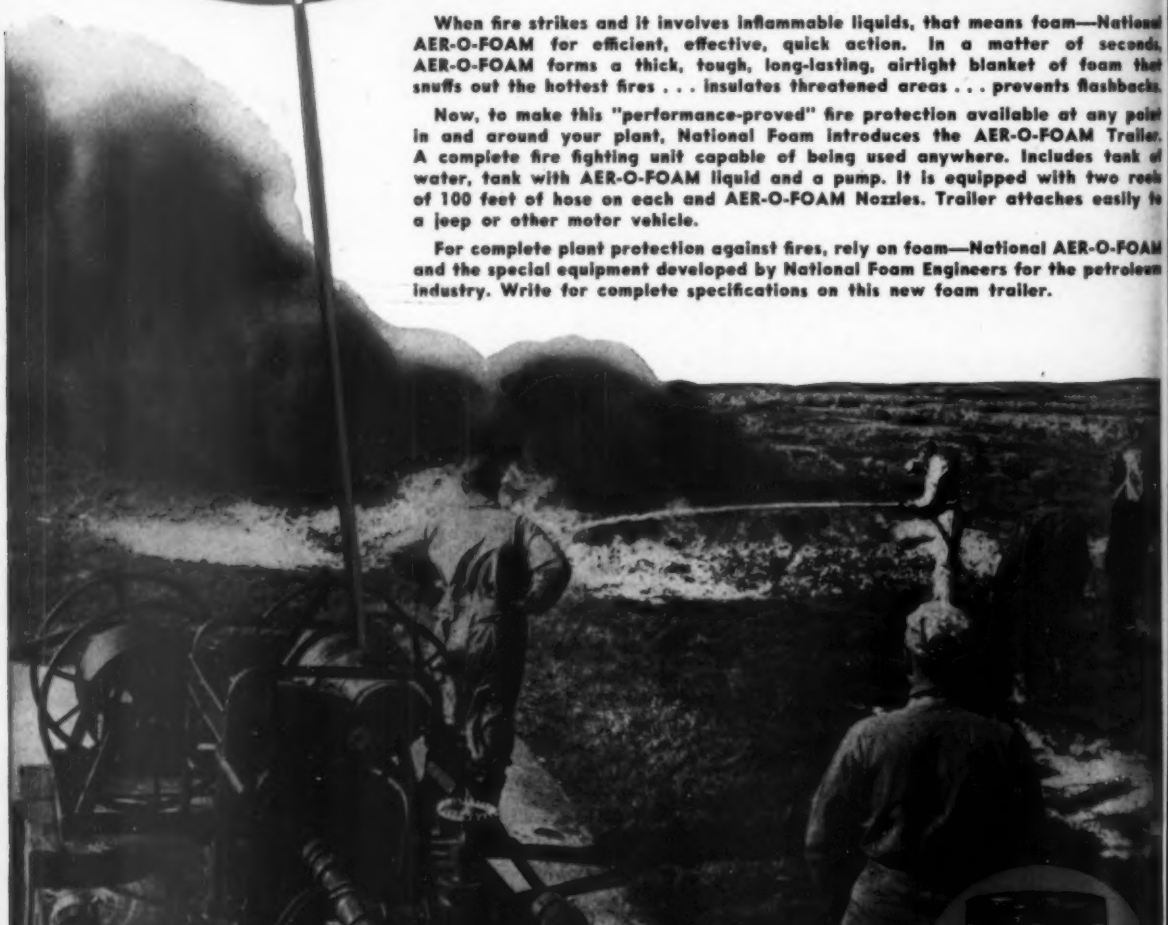

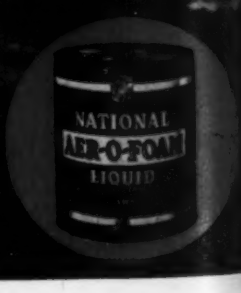

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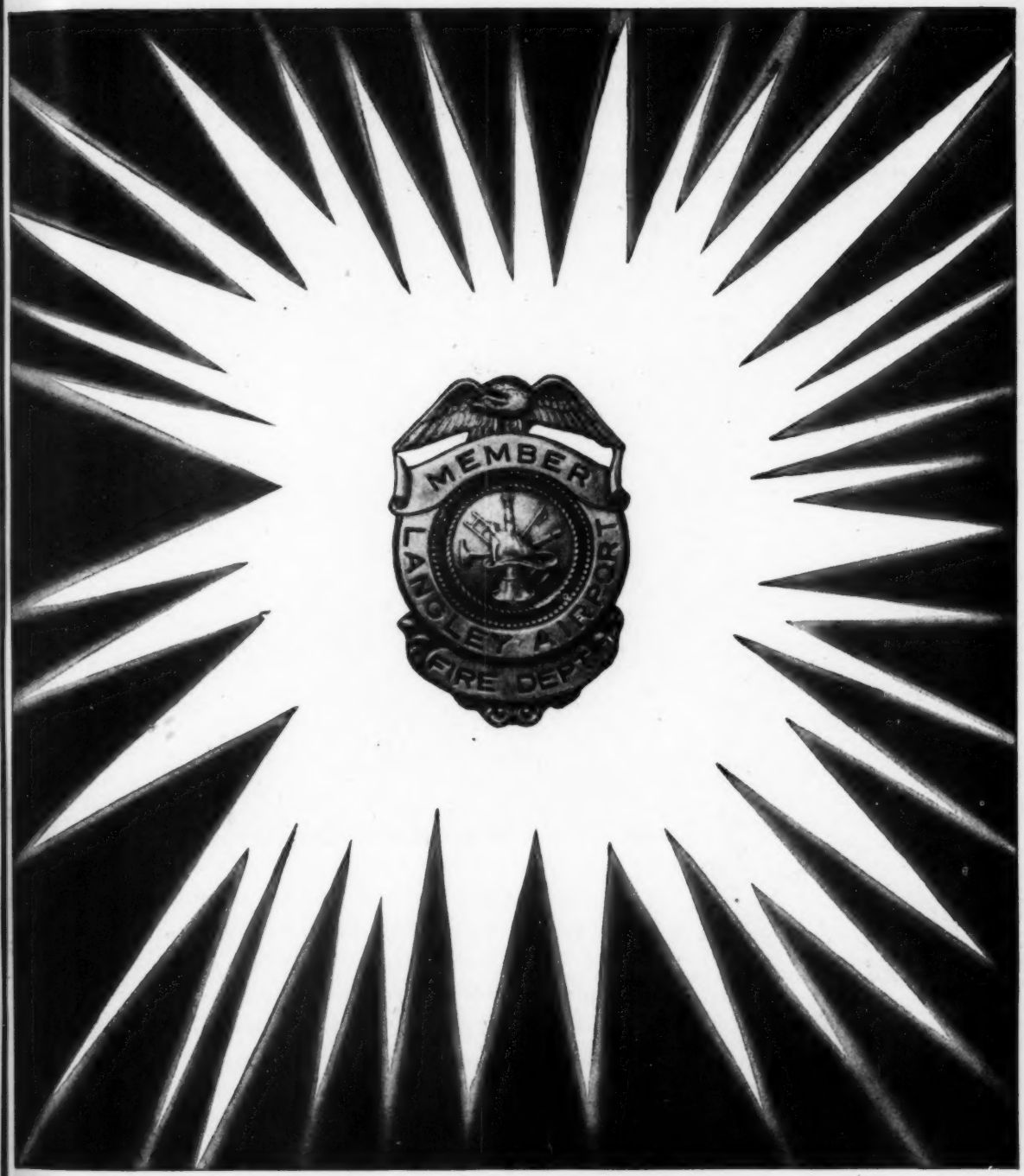

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FIRE ENGINEERING

SEPTEMBER, 1948 VOL. 101, NO. 9

With the Editor

Tomorrow's Radio

A simple news release by the Federal Communications Commission last June contained information of vast importance to the fire service.

The message predicted a mushrooming use of walkie-talkies, television stations and plane and train radio and told about the Commission's plans to avert future radio traffic jams in the nation's airways.

The high point of the statement was the estimate by the F. C. C. of radio growth which will take place in the next few years. According to that authority —and it ought to know what it is talking about—

Standard broadcasting stations will increase from 1,000 to 1,400.

Frequency modulation (FM) stations from 50 to 3,000.

Television stations from six to 200 or 300.

Radio-equipped planes from 3,000 to 50,000.

Aviation ground stations from 700 to 2,500.

Two-way service for autos, taxicabs, etc., from one city to 200 cities. Radio-equipped railroads from one road to 150.

Fire department radio from 50 cities to 5,000.

Citizens walkie-talkie from none to 200,000.

Amateur operators from 60,000 to 100,000.

Currently with this statement, we learn that the Western Union Telegraph Company has completed arrangements for telegraph service to and from more than 5,000 mobile radiotelephone units already equipped with radiotelephones through the Bell System and other telephone companies. Already people can not only telephone from a moving taxicab or car to any regular telephone user on the system, but can send telegrams collect, if desired, over air and wire.

In July, F. M. radio was installed on 127 motor buses and 31 trolleys in Cincinnati, Ohio, to provide day-long programs of news and music to bus riders. As this is written some 400 motor buses, trolley coaches and street cars in that city are being so equipped. Other cities, including Washington, D. C., are doing likewise.

What does all this mean to the fire service?

It means, first of all, quicker and broader contact with people in all walks of life; it provides facilities for directing the masses. In short, it means mass contacts, mass education, mass enlightenment and mass direction should the occasion require. But this is only part of the overall picture.

Of more importance, these increasing radiotelephone-equipped mobile units in cars, buses, taxicabs, public conveyances, trains, etc., are multiplying manyfold the nation's fire alarm communication facilities. It is not exaggerating to say that each such mobile unit is a travelling fire alarm station. Already many alarms of fire and notifications of other emergency cases calling for the services of the fire department have been flashed from these perambulating radio-equipped vehicles. This journal has told about some of these cases, such as the use of taxicab radiotelephone in emergencies by chief officers to summon help, and direct operations on the fire ground; to warn of impending disaster and the like.

It isn't pure fantasy to predict that any day now we will read accounts such as this in our local paper: "The fire was discovered by a milkman making his early dawn deliveries, who promptly radioed the fire alarm to the local fire department through his company radio dispatcher."

Nor is it a figment of the imagination to envisage members of the fire service, as well as the public, watching on the television the blow by blow fire fighting operations of fellow fire fighters in combatting serious fires.

Of course this progressive development isn't going to replace the recognized and standard fire alarm telegraph systems. The corner fire alarm box and to even greater extent, the private building box and auxiliary alarm system, will continue to be the main reliance of the fire service.

Fred Sheppard

Reno Fire and Explosion Offer Lesson to Fire Service

Combination of Tragic Circumstances Results in Five Dead, Many Injured

A SPECIAL REPORT TO FIRE ENGINEERING

Editor's Note: **FIRE ENGINEERING is especially pleased to bring its readers this timely, authoritative account of the much publicized disaster in Reno, Nevada, on August 15, last, which claimed the lives of three firemen, one a chief, and two civilians, and resulted in injuries to more than 130 others.**

Few fires in recent months have created so much interest and caused so much discussion of cause and effect as this tragedy. Few, also, have furnished the fire service such dramatic lessons as what is termed Reno's worst disaster.

Although this account is told in the terse language of Reno Fire Chief Karl Evans' exclusive report to FIRE ENGINEERING, one can visualize by reading between the lines, the dramatic highlights of the tense twenty-four hours spent by Chief Evans and his men. Crowded in those swift hours were a combination of circumstances which only rarely haunts the fire service—simultaneous fires . . . 'touch-offs' . . . thrill-seekers out of control . . . shattering, unexpected explosion . . . panic and sudden death—all this and more.

Here is still another compelling and enlightening chapter in the lengthening history of the nation's fire service, one which forethoughtful fire protectionists will study and retain for future reference.

The editors gratefully acknowledge the assistance of Fire Chief Karl Evans and his aides, and that of the staff of the Reno Evening Gazette, for the factual data and illustrations upon which this account is based.

THE ordeal that befell the City of Reno, Nevada, on August 15th, began with simultaneous fires, a condition that not infrequently faces the fire service.

At 9:05 A.M. on that date, the Reno Fire Department responded to an alarm of fire at 320 East Fifth street, at Evans avenue. This fire involved two sheds, one four-room, two-apartment dwelling; one old barn, a part of the first floor of which had been converted into living quarters and which was separated by about three feet from a large one-story wholesale grocery warehouse of reinforced concrete, with felt roof.

The assignment which answered this alarm included two engine and one ladder companies from the Central Station and one engine company from Fire Station 2. Fire Chief Karl Evans also responded. Two pumpers were in operation at this fire, which was the prelude to the big show that was to come.

At 9:55 A.M., and before any of the units that responded to the Fifth street fire had returned to quarters, an alarm was sounded for another fire on Lake street between East Commercial Row and East Second street. This call was received over his radio by Fire Chief Evans at the Fifth street fire just as the units were preparing to leave that scene. The smoke of the new fire was plainly visible to him at that time. Knowing the area as he does, and fully aware of its many fire traps, only about a block east of the colorful gambling district, Chief Evans was apprehensive and lost no time reaching the location of the new blaze.

Before Fatal Blast at Reno, Nevada

Many of the spectators looking on were injured seconds later when an explosion rocked downtown Reno following a blaze. Five persons were killed and many injured. Half a block was leveled by the blast.

The structure involved in this fire was frame construction, about 100 feet front by slightly less than that in depth. It was built in 1909 and had been fitted with a false front. It housed, from north to south, five small stores—an unused spaghetti restaurant, formerly Tony's Spaghetti Shop; the city's old war relief office; the Nevada Farm Labor placement bureau; the Reno Wallet Company, novelty leather manufacturing shop, and, finally, the Western Coin Company, which rented juke boxes and slot machines. Adjoining this structure on the north is the two-story Santa Fe Hotel and on the south, the three-story Alturus Hotel and Mandarin Cafe. Directly across Lake street, a wide thoroughfare, are a number of two- and three-story buildings, including the Mizpah Hotel. Similar structures were located across the alley west of the burning building. The cockloft in the latter covered its entire length, the space dropping from five or six feet in front to two feet in the rear.

Tony's Spaghetti Shop, in which the fire was started, had been the scene of another hot fire, about a year ago. That fire involved the kitchen and was extinguished by the application of a spray nozzle operated through the rear door. Part of the plaster on the kitchen ceiling fell at that time, when water was applied. In mopping up this previous fire, a large portion of the ceiling was removed and a hole was also cut in the roof for ventilation at the side of a skylight located over the kitchen. This hole may possibly have been covered by the salvage crew after the first fire. The store, however, had never been occupied since the earlier blaze except for storage of a few household appliances and its front was boarded up at the time of the recent fire.

It is believed that the condition of the spaghetti shop, following the first fire, was instrumental in the rapid extension of the second and more serious blaze. With the ceiling never having been replaced, and the opening in the roof with only makeshift cover, the fire quickly vented itself and spread rapidly from the basement where it was set by two youthful arsonists.

Young Boys Set Blaze

Investigation into the cause of the fire and the ensuing explosion by a committee composed of members of the National Board of Fire Underwriters, the Fire Prevention Bureau of the Reno Fire Department and Chief Karl Evans, finally centered suspicion on two nine-year-old boys, one of whom had been involved in the setting of another fire the year previous. At that time, he had been turned over to the Juvenile authorities. Both

Photo by W. W. Mulcahy

Rescue Operations Under Way Following Reno Fire and Explosion

View is looking east, showing aerial ladder and pipe in operation, hook of rescue crane, and portable monitor (lower center) cooling down wreckage.

boys had been in other kinds of trouble, such as petty thievery and pilfering, and were said to be the products of bad environment. Suspicion was directed at one time in the probe to a Las Vegas boy who was known to have set a number of fires and who subsequently confessed. However, it was determined he was not concerned in the Lake street disaster.

Initial Department Operations

Apparatus responding to the Lake street fire on the first alarm consisted of one 750 GPM triple combination and one 1,000 GPM triple combination pumpers. Ladder Company 1, which had just left the Fifth street fire en route to quarters, responded directly to the Lake street call.

The 750 GPM pumper was located at a hydrant on the corner of East Commercial Row and Lake street, just north of the fire (see diagram). Two lines were stretched from the pumper to the front of the fire on Lake street by Engine 1. The aerial ladder was set up directly in front of the fire, with ladder-pipe mounted. Engine Company 1 then laid two lines from this ladder to the hydrant at the corner just south of the fire. Engine Company 2 proceeded directly to this hydrant and hooked up.

The Squad Car, which responded directly from the Fifth street location to the Lake street fire, laid one line through the alley in the rear of the fire to the corner of the alley and Center street, one block west of Lake, where it connected to the hydrant.

Just about the time the set-up in front of the building was completed as described in the foregoing, a second alarm was sounded. This was logged at 10:00 A.M., at which time a call went out for off-shift firemen and for one additional pumper.

This second-alarm pumper laid a second line from the corner of the alley and Center street, where the Squad unit was pumping, to the rear of the fire. Then, from the back, it laid two other lines to be used on the portable monitor which had been special called with orders that on arrival it was to be placed in operation in the rear of the fire building.

The first hand-line, from the pump at the alley and Center street, was operated into the store on the north end of the building where the fire originated, the rear of which was completely involved. The second hand-line was taken to the roof of the Santa Fe Hotel, adjoining on the north to operate on the roof of the burning structure and protect the exposures in the Santa Fe Hotel itself.

In the meantime, a line had been stretched from the pumper on the corner north of the fire, a distance of about 150 feet, and placed in operation covering exposures in the Santa Fe Hotel and the front (Lake street) end of the north store, Tony's Spaghetti Shop, which was almost fully involved.

Another line was taken by hand from the pumper located south of the southern end of the involved building and this was operated to cover exposures in the Alturus Hotel, which, as previously said, adjoined the fire building on the south.

The ladder pipe, when necessary, could cover the exposures both on the Santa Fe Hotel to the north and the Alturus Hotel to the south, both two stories in height, brick faced and pierced with numerous windows facing the fire.

Both these old hotels were only slightly damaged by the fire. Windows were out, frames charred and in two cases, fire communicated to bedding but firemen quickly controlled this extension. The explosion, however, damaged the Alturus Hotel, to the south, considerably. One wall was pushed in and will have to be replaced. Walls of the Santa Fe Hotel were undamaged.

At the time of arrival of the first fire company, flames were coming through the roof over the Spaghetti Shop, through the hole made in venting the previous fire. Immediately upon arrival, the boards covering the front of this shop were removed to release smoke and gases. The two stores to the south of the Spaghetti Shop, one vacant at the time, had glass fronts which were broken out. Some glass had been partially broken out from the novelty leather shop and the establishment occupied by the juke box and slot machine concerns, to the south prior to the explosion. In the latter, there were stocks of merchandise owned by an Army goods store, including bales of tents, mattresses and cots.

No openings had been made in the roofs over any of the stores before the explosion except the Spaghetti Shop, which had vented itself before the arrival of the department.

Blast Shatters Entire Building

The fatal explosion occurred at approximately 10:22 A.M., causing instant collapse of the entire building. The walls were blown or pushed out and the floor, ceiling and roof collapsed into the basement. Whatever the cause of the blast, it was sufficiently severe to blow out windows in the neighborhood, scatter Lake street with shattered glass and debris and some of the contents of the occupied shops. A slot machine was hurled clear across the street. Some of the injured spectators caught in the line of the explosion had their shoes and parts of clothing ripped off.

The sudden concussion caught firemen and spectators in and facing the structure without warning. The firemen who were killed and most seriously injured were trapped fifteen to twenty feet in from the front of the building on Lake street. They were in the premises of the war relief store, the first one south of Tony's Spaghetti Shop and the next door Farm Labor office. The victims were caught on top of the floor and pinned by the shattered ceiling and roof. Seven firemen in all were caught at this time, three of whom lost their lives.

The dead firemen were: Frank B. Hobson, Chief of the Sparks, Nevada, Fire Department; Glenn Davis, Captain,

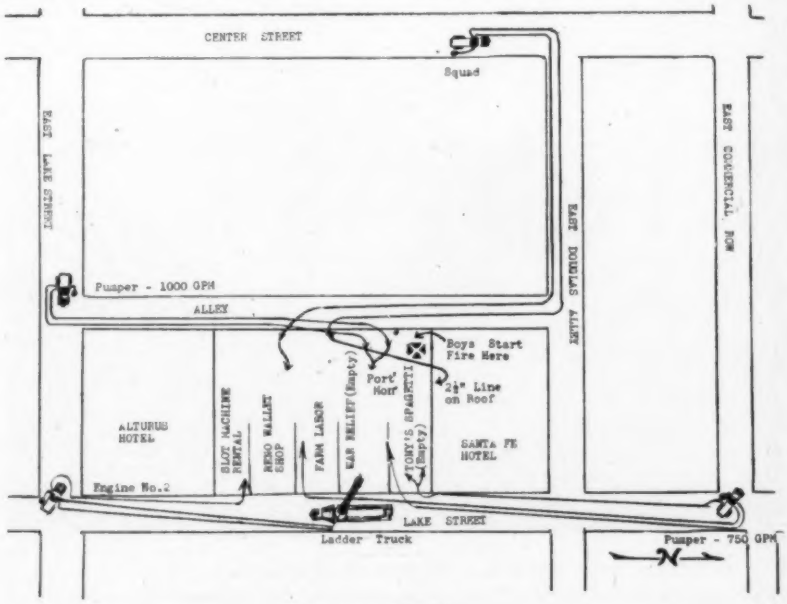


Diagram of Fire Area

and Earl Barry Platt, hoseman, of the Reno Fire Department. Trapped with Chief Hobson was his Assistant Chief, Lowell Monday. Captain Andrew Anderson of the Reno department was with Fireman Platt while with Captain Davis were two truckmen, Frank Roemer and Willis Strasser. Two civilians, William Robert Byron and Domingo Galli, were caught by the blast and killed on the sidewalk in front of the building. Press accounts had them as working with firemen on a hose line inside the structure.

Other firemen, some of them officers,

Photo by W. W. Mulcahy

Controlling Reno Fire Soon After Explosion

View is looking northeast as firemen direct streams from roof of adjoining two-story hotel into part of wreckage. Portable monitor in operation at lower right. Note outward force of blast.

were injured, a number seriously. Nineteen casualties among fire fighters were recorded. All officers and men working inside the front or Lake street entrance to the building at the time of the blast suffered some injuries, but miraculously escaped with their lives. Assistant Chief Neville North, who was directing operations on the Lake street front, was blown from just inside the door of one

Photo by Mrs. M. E. Allen

Operations on Lake Street Front Before Fatal Explosion

Showing smoke conditions in three of five stores in the old building after arrival of department and before fatal blast. Boarded front of unoccupied Spaghetti Shop has been removed and stream is being directed into vacant former war relief store next door. Aerial ladder (right) being set up as crowds press forward.

of the stores, out into the street under the aerial ladder truck. Others were blown clear across the street into the gutter on the opposite side.

Perhaps the most miraculous escape was that of Hoseman William Valline, who was at the tip of the ladder, operating the ladder pipe stream into the burning building at the moment of the blast. The practice of the Reno Fire Department has always been to have any man who operates a ladder pipe wear a safety-belt. This paid off in dividends. Although Fireman Valline was struck and almost knocked out by flying debris, and suffered chest and internal injuries, his ladder-belt held him safely in place until he could be rescued.

Crowds of Curious Caught by Blast

The sudden explosion caught many of the spectators, who had crowded past the fire lines. Some of these were attempting to aid the firemen but were actually hindrances. More than 100 civilians were injured, either by the explosion, or in the rush to escape. Fire officers were caustic in their condemnation of crowds which jammed the immediate area during the fire. In the words of Chief Evans, "not only did they endanger themselves to the extent that more than 100 of them were injured, but they also greatly added to the difficulties of fighting the fire." Chief Evans said. "The police department cooperated and threw up fire lines, but the civilians kept crowding in."

While hose streams were brought to bear on the wreckage from vantage points, members of the department, aided by city employes and volunteers, set about rescue work. Special equipment, including a large crane, was brought to the scene and as rapidly as possible the bodies of the victims were found and removed.

Emergency Units Mobilized from Wide Area

Volunteer and professional emergency services were quickly alerted and dispatched to the scene. All available ambulances were rushed to the area, not only from Reno and Sparks, but from Truckee, Tahoe City, Fallon, Portola, and Carson. Entire staffs of Washoe General and St. Mary's Hospitals in Reno reported for duty. Radio appeals brought, in addition, doctors and nurses. Red Cross volunteers and nurses' aid workers were in attendance. The civilian patrol and Red Cross disaster committee worked to keep emergency lines open and check casualties. The mobile unit of the CAP was set up near the fire and many firemen and workers were treated for exhaustion and smoke consumption on the spot with oxygen and first aid equipment. Self-contained oxygen apparatus was also used in fighting the fire and in rescue operations. An oxygen unit of a Detroit manufacturer, which happened to be nearby at the time, stopped to give aid. Hotels and Girl Scout headquarters dispatched blankets, and blood donors came by hundreds in response to repeated radio appeals.

Blast Due to Back Draft

The apparent cause of the shattering explosion was established by Chief Evans as compression of air and gases from burning materials, following the investigation into the disaster. According to Chief Evans, pressure had built up inside the building, probably from the gases activated by the fire. The pressure was particularly strong between the ceil-

(*Continued on Page 609*)

Photo by Mrs. M. E. Allen

Start of Reno Fire That Set Off Fatal Blast

Photographer catches fire in rear of Lake Street stores before fire department's arrival. Time about 9:44 A. M. Scene is looking east, toward alley in rear of unoccupied Spaghetti Shop in which boys set fire. Note exposures.

Transportation Hazards of Flammable Liquids—Part 2

Dangers of Such Transportation Not Confined to City Streets or Congested Areas; Filling Stations Are Sources of Potential Trouble; Procedures for Control and Extinguishment

By ROI B. WOOLLEY

Editor's Note: This is the second installment of a series of texts dealing with hazards attendant upon the transporation, handling and storage of flammable liquids, with emphasis on gasoline, liquified petroleum gases and volatiles having low flash points.

Part I dealt primarily with hazards inherent in transporting flammable petroleum liquids over city thoroughfares. It described the vast expansion of the petroleum industry and the new and broader uses of flammable petroleum products in heating, transportation and other fields. It was shown that the fire record has not been so bad in this category, considering the increased use, handling and shipment of such products. The report pointed out also the need for more and better transport vehicles and for more careful operation, particularly of independently owned and operated transports. It quoted data on the causes of fires involving tank trucks, showing that more fires involving tankers occurred while the vehicles were in motion than while stationary, and collision was most common among causes.

After detailing the hazards in tank truck transportation of flammable liquids, Part I cited numerous case histories of tanker fires within municipal boundaries. It was pointed out, also, that transport loads are getting larger, and hauls are growing longer. Finally, Part I discussed the efforts being made to inaugurate safety measures regulating the movements of flammable liquids through congested and high value areas.

Part II, which follows, carries the studies of these hazards still further. It shows that fires involving motor transports loaded with gasoline and other highly volatile liquids may be just as destructive of life and property on country highways as they are on city streets. In one respect, at least, they are worse: they are more difficult to control and extinguish than similar fires within municipal limits, where ample fire control forces and extinguishing agents are available.

This installment concludes with a summarization of the more commonly used methods and techniques employed in controlling and extinguishing fires in this category, and offers some suggestions for preventive measures.

As in Part I, the editors acknowledge the cooperation of the American Petroleum Institute, Esso Standard Oil Company and National Board of Fire Underwriters. Appreciation is also extended our readers who have forwarded their comments on the initial installment of this series.

IT was shown in the first part of this study that of 301 fires involving tank trucks (and other carriers), 65%, or over two-thirds, occurred while the tankers were in motion. No data are available to compare the number of fires occurring *within* municipal limits with those reported on country highways, although it is said that the largest percentage have taken place in non-metropolitan areas.

Another factor to be considered is that fires involving transports on country highways more often result in total loss, than where the fires occur in cities. The actual and potential *property* loss resulting from such fires is of course much greater where the incident occurs within built-up municipal areas.

No study would be complete without some account of typical highway fires that happened in wide open spaces. One such incident occurred.

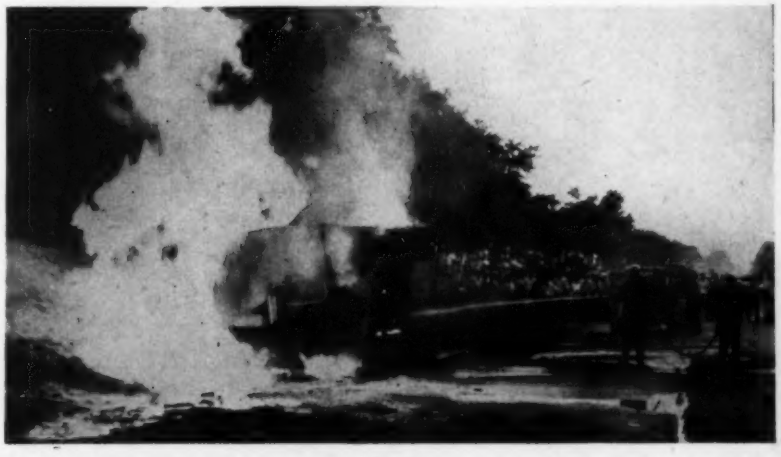
On the night of July 10, 1948, a Spokane man was killed and two Seattle persons were injured in a three-way collision involving a gasoline truck and trailer, an automobile and a pick-up truck. The accident occurred on the Sunset Highway eight miles east of North Bend, Washington, at about 11:30 P.M.

The driver of the gasoline truck was killed when he was trapped in the cab of his tanker. The driver of the pick-up truck and a woman riding with him were injured.

Police reported that the accident occurred as an automobile driven by an 18-year-old youth was attempting to pass the gasoline truck. Both were traveling east. As the youth's car drew abreast of the tanker, the pick-up truck approached from the opposite direction. The driver of the auto swerved to the left, striking the pick-up truck, throwing it against the gasoline trailer.

Thousands of gallons of gasoline pouring from the truck and trailer burst into flames, the fire spreading for hundreds or feet along the highway, igniting brush and young timber. The pick-up truck and the gasoline transport were quickly involved and demolished. The youth's car received only minor damage.

The North Bend Fire Department was called and extinguished the brush fire, assisted by Forest Service fire fighters. They were unable to cope with the gasoline-fed blaze however, which burned itself out before foam,



Firemen Play a Stream of Water on an Overturned Gasoline Truck Which Burned, Consuming 5,000 Gallons of Gasoline and Blocked U. S. Highway Six, West of Gary, Ind., August 24, 1948. The Truck Upset and, in the Crash, the Gasoline Ignited.

sent to the scene by Seattle coastguardsmen, could arrive.

It will be noted that this accident took place after dark, shortly before midnight, on a well paved highway and that no buildings were involved or exposed.

Earlier in 1948 one man was burned to death and another hurt critically and a country store was destroyed by fire following a collision between a passenger car and a gasoline truck near Rector, Arkansas.

The driver of the automobile died in the wreckage of his car; the driver of the tank truck was badly burned. The country store was ignited by radiated heat from the flaming wreckage. Loss was given as considerable.

This case demonstrated the fact that even in country areas, tanker fires may involve roadside buildings.

Highway Fires Hard to Control

Another highway incident that illustrates the hazards of gasoline and similar flammable liquid transport fires, and which indicates the difficulties in controlling them, occurred on a State Highway at Mountainside, New Jersey, September 9, 1947, when a trailer truck loaded with gasoline mounted the curb and overturned, sending 4,500 gallons of flaming gasoline cascading down the roadway in twin rivers of fire a half-mile long.

The flames, which leaped over 100 feet in the air, ignited six buildings and a service station, destroyed trees and grass and pulverized the concrete roadway. No one was injured, the driver of the truck being thrown clear.

The crash occurred at about 5:45 A.M. as the trailer truck was bound west on the four-lane highway. At the top of a grade the driver apparently lost control, and the tanker failed to round a curve. As the vehicle jumped the curb, the trailer broke loose from the truck, which turned over twice, landing right side up on an island in the middle of the highway. The trailer crashed on another section of the island fifteen feet away, its top crushed in. The gasoline escaped from it and fumes ignited almost immediately. Running flames set fire to vegetation, trees, homes and telephone poles and melted the insulation from telephone and power wires.

Eleven Die in Triple Crash

At least eleven persons lost their lives in this flaming inferno when a gasoline tank truck exploded after it had collided with a Queen City Trailways bus at Lumberton, N. C. Eighteen persons were injured and managed somehow to clear themselves from the burning wreckage. All that remains of the bus and truck is a mass of charred steel. The pre-dawn tragedy occurred on U. S. Route 31 when the gasoline truck (left) going north, sideswiped a truck (right) and swerved across the road and ploughed into the fully-loaded bus (center).

At the foot of the hill, the flaming gasoline involved a service station, wrecking four fuel pumps and burning out the canopy of the structure. Just beyond this point, the flowing fire poured into a sewer and entered a small brook which runs into Echo Lake Park. The brook was set ablaze for fifty yards beyond the sewer entrance. Meanwhile the fronts of several homes and the two-and-a-half story Mountainside Inn were ignited from radiated heat.

The Mountainside Fire Department was called at 5:55 A.M., and sped to the scene from the west, but was blocked by the flames. Neighboring firemen from Springfield, four miles to the east, were called at once and responded with two pieces of apparatus. They managed to get through the guttters of flames to reach two hydrants which furnished water to control most of the fire extension.

Here, too, fate was kind. A radio patrolman heard the crash and saw the start of the fire. His radiophone proved invaluable in the emergency. Firemen controlled the fire using large fog nozzles.

This fire demonstrated the difficulty in bringing fire control forces into action where the highway fire had cut off their approach to the fire scene, necessitating detours, the calling for additional help that may be at some distance, and perhaps preventing use of the only available water supplies. It also conclusively illustrated the value of two-way radio communications for the fire service, and of coordination of effort on the part of police and fire forces.

Earlier that same year evidence of the destructive possibilities of fire involving highway transportation of such flammables was furnished in a collision between two gasoline-loaded vehicles and a hay truck on the 220 foot Washougal River bridge on the west edge of the town of Washougal, Wash. The bridge, and two oil trucks, one with trailer, were destroyed in the ensuing fire.

The vehicles were traveling the Evergreen highway, the lead oil truck loaded with 3,000 gallons of barrelled gasoline heading east, when it sideswiped a westbound hay truck. The second gasoline tanker and trailer, closely behind, crashed into the first transport when its driver was unable to stop. Fumes flashed immediately and the drivers of both vehicles fled for their lives. Ironically enough, the hay truck was able to proceed undamaged after the accident.

Following the triple crash, at 8:40 A.M., 40-foot flames melted the girders of the bridge, dropping it and the burning trucks into the river within thirty minutes, according to State Patrolmen who witnessed the accident. Other witnesses reported the collison threw a barrel of fuel off the first truck and fire ignited its leaking contents, to quickly involve both trucks and trailer.

The Washougal Fire Department was called by State Police, but could do

Sharpshooters Aid in Fighting Oil Truck Fire

Volunteer firemen at Clifton Park, N. Y., became sharpshooters as they vainly tried to save a trailer truck loaded with 5,000 gallons of gasoline from the fire that destroyed it. When state policemen were unable to penetrate the tank with bullets from their revolvers, the volunteer firemen used rifles and steel-jacketed bullets to accomplish the job and in this view of the fire, a sharpshooter is seen, right, taking aim at the blazing vehicle. This is not considered a practical method of relieving pressure in burning tanks.

Curtains for Zacchini Cannonball Circus Act!

A crash between an oil truck and the truck used by Edmund Zacchini and his daughter in their famous circus act, in which they were catapulted from a cannon, temporarily ended the act, with a loss reported by Zacchini at $10,000. The oil truck and "cannon-catapult" vehicle were both wrecked by the crash and subsequent fire, although neither of the two performers was injured. The driver of the oil truck suffered burns and abrasions. The accident occurred on the Gary-East Chicago boundary line.

nothing with the blazing gasoline. The 21-year-old bridge is reported to have cost over $225,000 to replace. One truck with 3,000 gallons of gasoline, valued at $6,000 and another truck, its trailer, loaded with 6,000 gallons of fuel, valued at $18,000, were both total losses. Highway traffic on a major route had to be rerouted with considerable inconvenience and some economic loss to travelers.

The hazards in the transportation of flammable liquids are not all confined to gasoline and other volatiles having low flash points. There are accounts of highway accidents involving tankers and trucks carrying fuel oil and distillates in which fire ensued, with loss of life and property.

One such episode was described in the July, 1946 FIRE ENGINEERING. An oil truck being operated on the Gary-East Chicago highway, near Gary, collided with the "cannon" truck used by Edmund Zacchini and his daughter in their famous circus "cannonball" act. The oil truck and the "cannonball" vehicle were both wrecked and burned. Fortunately neither of the Zacchinis was injured, but the driver of the tanker suffered burns and abrasions.

In another case, in November, 1947, a tractor-tanker loaded with fuel oil was involved in a collision with a tractor-trailer carrying twelve tons of bricks on Route 22, east of Phillipsburg, N. J. Oil from the ruptured tank was ignited, sending a flaming stream down the roadway's gutters for 100 yards and blocking the highway to New York for four hours.

The driver of the brick truck was pulled unconscious from his wrecked cab, before the flames reached him, by the driver of the tanker, who was himself cut and burned.

The accident was caused when a front tire of the brick truck blew out, causing the vehicle to swerve into the rear of the tanker, which was going in the opposite direction. Both vehicles were a total loss, but there was no roadside property damage.

In another collision between a private automobile and a tractor-trailer loaded with kerosene, which occurred in April, 1946, two persons were killed and three injured, one critically.

This accident occurred in an underpass of the Pittsburgh, Shawmut and Northern Railroad, on State Highway 17, about five miles west of Bolivar, N. Y. In this crack-up, too, the driver of the trailer-tractor managed to rescue two occupants of the other wrecked vehicle despite his own serious injuries. Two victims were burned beyond recognition when the 4,000 gallons of kerosene in the tanker, became ignited and formed a blazing lake around the motor car. The fire was so fierce it consumed the wooden ties of the railroad tracks overhead, stopping rail traffic until repairs could be made.

The oil truck, going west, shot out of the underpass after the collision and up the inclined highway several feet before it overturned. Apparently the damaged truck caught fire almost immediately and its contents of flaming oil poured down the slope into the underpass. The tanker driver, ran ahead of the fiery flood to drag out the two occupants of the rear seat of the auto.

Highway tanker accidents (and fires) can more directly involve railroads.

The worst disaster of its kind in Delaware County, Penn., occurred in 1945 when a Philadelphia Transportation Company trolley and a large fuel oil trailer-truck crashed and burned. Five persons, including a five-year-old girl, were killed as fire followed the explosion of three of the fuel tanks on the truck after the crash. One of the victimes was the driver of the truck.

In addition to four person who were trapped by the flames in the trolley, six other passengers escaped from a rear door. Four suffered serious burns.

In this accident, the 3,500 gallons of Bunker C fuel oil in the carrier did not ignite and burn, although both the truck cab and trolley were destroyed by the flames.

The collision took place at the intersection of a private right of way on the P.T.C. and the Industrial Highway about a mile east of Lester, Pa. The Route 37 trolley was bound for Chester. The truck's main and two auxiliary gasoline tanks ruptured and the vapors ignited, causing three explosions following which, fire quickly enveloped the trolley, burning it to its steel chassis. The cabin and tank of the truck were torn apart and the driver trapped in the blazing cab.

It was disclosed that a blinker light, operated by a trip switch was working, but the truck proceeded upon the tracks, being struck head-on by the trolley.

Firemen and police from a wide area, including a rescue squad and two ladder companies from Philadelphia, pumpers and rescue squads from Chester, and volunteer companies from Lester, Essington, Ridley Township, Prospect Park and Sharon Hill converged on the scene, although there was little for them to do but extricate the victims.

Through service on Route 37 was tied up almost seven hours.

Control and Extinguishment

There can be no set procedure for controlling and extinguishing these types of fire we have described. The methods employed will depend upon a number of factors, such as location of the fire, whether in the open, on the highway, or on city streets; the life and property at risk, and the available fire fighting and rescue facilities.

Naturally, the first consideration is the saving of life but no time should be lost, also, in summoning adequate help.

Water-Fog and Foam Control Tank Truck Fire

Firemen stretch in to start operation of extinguishing fire involving gas tanker near Williamsport, Pa. Fire was knocked down by fog, after which foam was applied to finish the job.

If special equipment and extinguishing agents are going to be needed, i.e., foam, fog nozzles, applicators, masks, lighting equipment etc., the officer in command should know where to get them, and call for them. In this connection, and for securing ambulances and medical assistance, as well as for directing control of incoming fire forces and other details, it will help to early locate a fire or police radio equipped car, at a strategic location on the fire ground. This can serve as the command post, or G.H.Q., for directing all operations, and as a first aid station.

Severe Life Hazard

This type of fire of fire, with the tendency of vapors to travel considerable distances and to pocket at low levels and flash on contact with spark or flame, presents a severe life hazard. Pedestrians, spectators, operators of vehicles and firemen in the area may be seriously endangered, particularly on the leeward side of the fire.

The hazard is intensified in city streets where there are elevated structures or tunnels and subways, or in any location where the accident occurs on a bridge (as was described in the foregoing).

As quickly as possible, traffic should be stopped a safe distance from the scene. At the same time, the fire area should be cleared of all but firemen and other emergency workers. Additional police should be brought in, if necessary, to aid in this.

In view of the possibilities of injury to firemen and others, even if there are no immediate casualties involved in the crackup, it is good policy to summon ambulances and first-aiders, to stand by. If there is a possibility of fire involving power and communication facilities, the proper utilities should be notified.

Cover the Exposures

Prevention of extension of the fire is next in importance to saving life. Even if the accident occurs on the open road, there is the possibility of extension by radiated heat or direct contact to start ground or forest fires. Although the possibilities of explosion of the tanker itself are remote, if the fumes are venting, such possibility should always be anticipated and the safety of fire fighters insured as far as possible.

In the city, where valuable property may be at risk, the first operation should be to cover the most critical exposures. These are usually to leeward if there is any wind blowing, or at the lowest point of any gradient.

In placing apparatus to cover exposures it is well to play safe, locating equipment where it will not be caught in a flareup, or blast, or rapid extension of the fire. In covering exposures it may be necessary to let the tank truck and contents burn until sufficient fire fighting strength is available to attack the truck fire without weakening the protection of exposed property.

If deck pipes are available and there is sufficient water supply available, it would be advisable to place them in position to cover building fronts from a side angle, sweeping the exposed properties. If available a large capacity fog nozzle (500 G.P.M. or greater) may prove effective, directing the pattern so that the water droplets drift downwind onto the exposures. Large volume fog (unless there is a very high wind which cannot be taken advantage of), will cover and cool exposed surfaces, while breaking down radiated heat better than a straight stream. It has the added advantage of not breaking windows to permit heat and fire to extend into structures.

If no such fog nozzles are available, but heavy streams can be developed and there is considerable extension of fire threatening a wide area, the heavy streams may be directed vertically, to impinge and form a heavy curtain of coarse spray.

As rapidly as possible hand lines should be taken into structures that may be, or threaten to become, involved by the street fire. Fast work will be necessary to cover many floors with few lines. Unless the fire has too great command of interiors, one-and-one-half inch lines (or even booster lines) are preferable. Where lines are limited, hand extinguishers of any and all types may be pressed into service for covering exposures. If there are auxiliary fire fighting facilities, these may be used.

Particular attention should be paid to cornices and top floors of exposed structures for possible extensions due to radiated heat. It may be well to post watchers on roofs of exposures, although this type of fire does not emit sparks or embers unless structural property is involved. All windows and structural openings in the path of the fire should be closed.

If the fire extends into sewers, street covers should be removed where this can be done without exposing nearby property, to permit escape of gases. Lines should be stretched into basements of buildings severely exposed, to be ready to protect against entrance of fire from sewer lines, conduits, etc.

A flowing fire may be diverted from entering sewers or streams by damming it with sand or dirt. Note the grade in the street and anticipate the direction of the flow.

Prohibit all smoking, extinguish all open flames and have all motors stopped except for necessary apparatus, in the

DEFINITIONS

Tank Truck: Any single self-propelled motor vehicle equipped with a cargo tank mounted thereon, and used for the transportation of flammable liquids.

Tank Full Trailer: Any vehicle, without motive power, equipped with a cargo tank mounted thereon or built as an integral part thereof and used for the transportation of flammable liquids, and so constructed that when drawn by a truck or tractor-truck, no part of its weight rests upon the towing vehicle.

Tank Semi-trailer: Any vehicle, without motive power, equipped with a cargo tank mounted thereon or built as an integral part thereof, and used for the transportation of flammable liquids, and so constructed that when drawn by a tractor-truck by means of a fifth wheel connection, some part of its load and weight rests upon the towing vehicle.

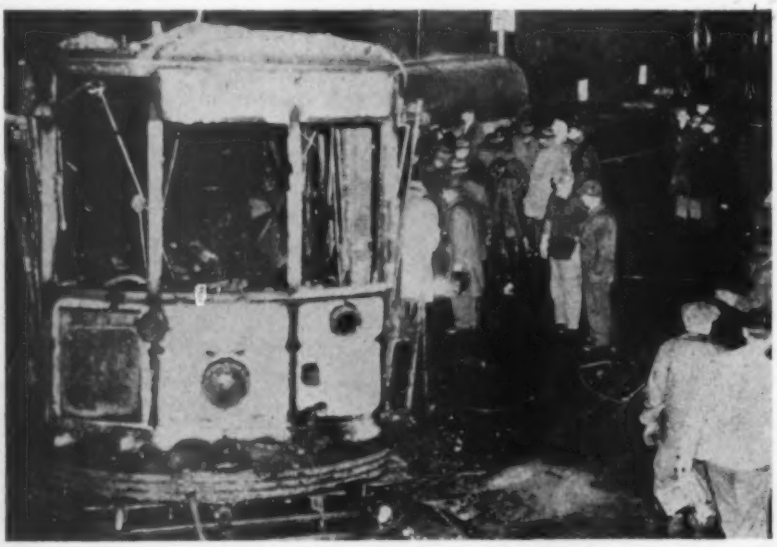
Tank Vehicle: Any tank truck, tank full trailer, or tractor and tank semi-trailer combination.

Cargo Tank: Any container having a liquid capacity in excess of 100 gallons, used for the carrying of flammable liquids, and mounted permanently or otherwise upon a tank vehicle. The term "cargo tank" does not apply to any container used solely for the purpose of supplying fuel for the propulsion of the tank vehicle upon which it is mounted.

Flammable Liquids: Liquids having a flash point below 187° F. (Tag closed Cup, ASTM D56, API 509) which, for the purposes of this specification (API Specifications for Tank Vehicles, 1946), shall be divided into two classes, viz.:

Class "A," embracing those flammable liquids having a flash point below 70° F.

Class "B," embracing those flammable liquids having a flash point from 70° to 187° F., inclusive.



Six Were Killed When Oil Truck and Trolley Crashed at Lester, Pa. View of Charred Wreckage After Collision.

area where vapors may accumulate. It might be well also to remove all vehicles from the possible path of fire extension.

Power should be cut from overhead wires which might become involved and endanger fire fighters or others.

Use Water Carefully

It should be unnecessary to advocate caution in the use of water on gasoline or other flammable oil fires. Water may spread the fire and carry it down grade and into sewers. It is better to dyke the flowing fire. Caution should be used in applying water to sluice away spilled flammable liquids. Be cautious of any fire where the involved tanker is on a grade. The fire may release the brakes, permitting the vehicle to move downhill. Try to chock the wheels, under these conditions.

Firemen should not approach too closely to the burning truck or its contents if conditions are severe or explosions likely. If fog nozzles and applicators are available, men should attack under their protection.

In general, fog or fine spray should be employed to cool the container and prevent flashbacks, while foam or fog-foam, carbon dioxide or dry powder extinguishers can be employed for killing the fire in the flammable liquid itself. Wetting agent intruded into fog streams, or even straight booster lines, increases their extinguishing properties on certain types of flammable liquid fires notably kerosene. Its efficiency on large gasoline, as well as butane, propane and L.P.G., fires is as yet not fully determined.

When applying streams or fog onto the tanker for cooling, should only one or two compartments be involved, endeavor to concentrate on the remaining compartments. In attempting to sluice away burning liquids on the road, direct the streams so that the carry-off will endanger the least amount of property.

Finally, do not leave the fire scene until all possible danger of re-kindle or re-ignition is past. Heat may be stored up in metal parts, or tires, or even in roadside vegetation, to re-flash volatile vapors. As long as vapors continue to be given off from the container or highway, keep fire and crowds away, and be vigilant.

Some Additional Preventive and Protective Measures

Fires such as have been described, on the highways, may create just as great crowds of the curious as where they happen in cities. One difference is that having little or no municipal police or traffic force to aid them, fire fighters operating in country territory are more liable to be handicapped by the curiosity seekers and eager, but untrained helpers.

In dealing with fires in flammable liquids, where explosions and flare-ups are always possible, the life hazard is greatly multiplied. The records include several accounts of lives being lost, and many persons injured, by spectators crowding too closely to such fires. This is illustrated in an accompanying photograph of a fire at Gary, Indiana.

All persons not engaged in rescue or fire fighting operations should be kept at a safe distance. Motorists, also, should be compelled to "keep going" or, if they have already stopped their cars before law enforcement forces arrive, they should be compelled to move them out of the danger zone. Here is a detail where power voice amplifiers or a portable P.A. system can be helpful!

Another detail is training. Small town firemen usually are unfamiliar with the construction of motor vehicles used to transport flammable liquids. This is particularly true of carriers of L.P.G. (liquified petroleum gas such as butane and propane). The average fireman is ignorant of details of markings, safety vents, delivery pumps and connections, outlets and intakes, drag chains and the like. Few have ever discussed these factors, and the procedures to follow in the event of fire in such carriers, with those who drive and operate the latter.

Firemen Should Be Familiar with Petroleum Products

A few lessons in familiarizing firemen with such factors and in discussing fire control methods and extinguishing agents with the men familiar with petroleum products, their handling and storage, may prove of inestimable value in an emergency.

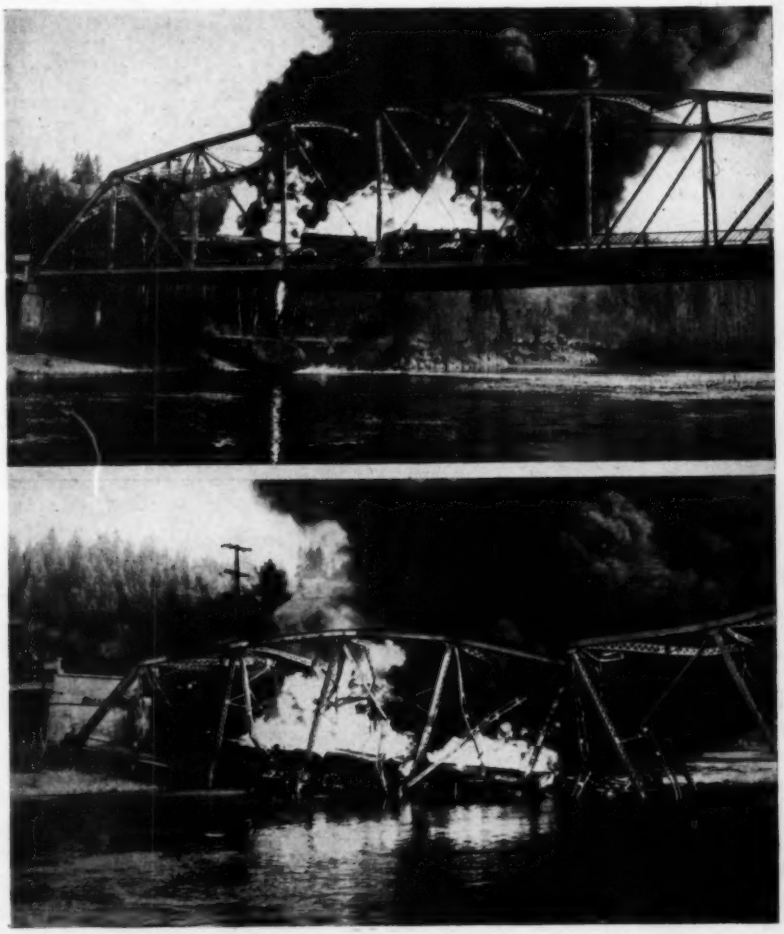
This is one form of inspection—inspection for learning. Another form of inspection is advisable, also. That is where there are regulations and ordinances designed to govern the operation of such vehicles. This is particularly true in communities having fire prevention and safety codes.

As was pointed out in Part I, there is a shortage of approved transports for transporting flammable liquids. There are carriers on the roads which are deficient in safety measures. There are operators also who do not measure up to approved standards. True, most of these conditions are found in the field of independent tanker owners.

Constant and thorough checkup and inspections of carriers and operators will help prevent accidents and perhaps serious loss of life and property.

Energetic and honest enforcement of regulations, where they exist is essential. Where there are no regulations, as in the case of many country areas where the state or county has failed to create them, adequate safety provisions and standards should be adopted. There is no mystery about these or what they should contain. There are ample suggestions in Codes issued by the National Board of Fire Underwriters. The American Petroleum Institute is a good source of helpful information on this score.

As a last suggestion—"enlightenment." More education on the uses and abuses of flammable petroleum products is needed, both in the fire service and



Burning Tankers Wreck Steel Bridge

Following a crash between two gasoline tank trucks and a hay truck on the Washougal River bridge at Washougal, Washington, ensuing fire wrecked the span. Upper view shows fire at its height, with far side of span beginning to sag. Note gasoline burning on river surface. Lower view shows the bridge just after it fell.

among citizens generally. This isn't a task solely for the fire service, but it is one in which its personnel can cooperate.

Reports to FIRE ENGINEERING

A series of surveys and studies by FIRE ENGINEERING over a period of years, covering cities, towns and villages, disclosed the following:

1. Gasoline *was* being transported through city streets in business and high value districts. Such transportation *was* on the increase.

2. Although many communities reported accidents to tank trucks (for the most part as a result of collisions), fire resulted in only a small percentage of cases. Undoubtedly this was due to prompt protective measures taken by the fire department in cutting off and policing the area, controlling the flow of spilled flammables, and correcting mechanical faults or failures in the transport.

3. There were more such accidents, with and without resulting fires, on thoroughfares *outside* the business and high value districts than *within* them. Some chiefs attributed this to efforts made to keep such transports off busy, crowded streets and, secondly, to the slower pace necessitated in operating transports through business thoroughfares, with their greater traffic.

4. Fires involving shipment of flammable liquids on city streets, resulting from whatever causes, were about evenly divided in number with fires in or connected with tankers while engaged in loading or discharging operations, at storage plants or filling stations and garages. In short, the actual number of fires in gasoline or other highly volatile liquids, occurring *on city streets of business sections* has been relatively small compared with the *total of all gasoline tank truck fires on all highways and byways.*

5. A surprisingly large number of communities either have no local ordinances regulating the transportation, handling and storage of flammable liquids, or the laws are out-of-date or loosely drawn and do not conform with the recommended codes.

6. There has not been the cooperation between fire departments, oil companies and oil distributing agencies that many believe is advisable. In some cases, real cooperation has resulted in re-routing of hazardous transports, removal from streets of sub-standard vehicles, and improvements in driving practices without resorting to labored legal procedure.

7. There is an increase in the transportation of liquefied petroleum gases—propane, butane and mixtures.

8. In many instances, local ordinances covering "flammable liquids" do not make provision for the extra hazards in the transportation, handling and storage of L.P.G. products.

9. The evidence shows the majority of accidents and/or fires involving transportation and handling of flammable liquids to be due to causes which, had the recommended codes been in effect, would not have happened.

10. The evidence discloses, furthermore, that there are more accidents to automotive tankers owned and operated by independent concerns, than to those belonging to the major oil companies.

11. Lastly, all testimony of late years, points to the consistent efforts of these better companies to set up and maintain most stringent safety measures, and to work with local fire services in furthering safety in every stage of the refining, transportation, handling and storage of these flammable products.

Almost from the day the first gallon of gasoline was transported by motor truck through the streets of a municipality, fire officials voiced concern over the hazards introduced by such shipment.

Initial efforts to regulate both the cargo carriers and the procedures and methods of transportation of flammable liquids met with little success. However, as evidences of the need of regulations to control such transportation multiplied, buttressed by actual fire records, many municipalities and some states set up laws and ordinances for that purpose. This was even before the experiences of the state of Kansas, previously told.

One of the chief stumbling blocks to these regulations, however, was the effort to restrict tank truck transportation to thoroughfares and areas of least life and property exposure. As far back as 1932, chiefs recommended to FIRE ENGINEERING (1) that tank truck transportation of gasoline and other flammable solvents, be prohibited from city streets and (2) where deliveries must be made within cities, the size (capacities) of such vehicles be limited to a "safe" minimum. In some communities this was set at 600 gallons; in others 1,500 gallons; and in others, compartmentized tankers with compartments not to exceed 600 gallons each were demanded.

There has been little disagreement over the fundamentals of tanker construction, of mechanical safeguards on tanker and in the filling station and bulk handling plants. The Safety practices for operators have been fairly well standardized. But there has not been full agreement on the regulations for through, bulk transportation of such flammables in cities and special high hazard areas. Efforts to restrict transportation—deliveries and pickups to daylight hours, or certain periods of the day (some chiefs have recommended no such transportation between the hours of 3:30 P.M. and 6:00 P.M.) have generally been unavailing. The war, fuel shortages and rationing influenced gasoline delivery and transportation schedules.

Another factor of disagreement is the enforcement of regulations having to do with transportation of flammable liquids where they are in effect. Not many states have comprehensive regulatory measures applying to statewide or interstate shipments of these flammables. In some that do, enforcement of the statutes in effect are in the hands of agencies not connected with the fire service. In one or two, the authority rests with the labor department: in another state it is the "industrial commission." And even in those states where there are fire marshals, the responsibility for enforcement may not rest in the marshal's office. At least 24 states either have no fire marshal, or if they do, the marshal has no voice in regulatory measures of this nature.

There the matter stands today. At this writing, we are informed, a code committee representing all factors concerned with the problem of regulatory safeguards for handling, transportation and storage of flammable liquids, is at work on a revised code.

Radio Reduces Forest Fire Losses

Applications for construction permits for four new transmitters to tie into Connecticut's fire control radio network have been filed with the Federal Communications Commission, it has been announced by Donald C. Mathews, Director of the Connecticut State Park and Forest Commission.

Director Mathews said permits were requested for installations in the fire towers at Redding, Pomfret, East Haddam, and Roxbury. If granted the installations would bring to 13 the number of fire observation towers in Connecticut equipped with radio. There are now 19 towers in the state, eight of which are radio equipped, and one for which a license has been procured. This will be ready later in the year, according to Director Mathews.

Radio permits almost instantaneous communication with the equipment towers through the central office at Hartford. Radio, Mr. Mathews said, has been an important factor in drastically reducing losses through forest fires in Connecticut.

TOM MAGNER

Photo by W. J. Scott

Newly Elected Officers of the Dominion Association of Fire Chiefs. Left to right are Chief Robert C. McRonald, London, Ont., First Vice-President; Chief Charles H. Vince of Guelph, Ont., President, and Chief W. H. Short of Lethbridge, Alta., Second Vice-President.

Fire Service Plays Big Part In Combating Northwest's Floods

Rescue Work Performed Largely With Equipment Manned by Fire Fighters

A STAFF REPORT*

SPRING of this year ushered in the most destructive floods to strike the northwest since 1894, bringing heavy responsibilities and long hours of extra duty to fire service personnel over a wide area. One entire fire department was literally wiped out of existence.

The actual number of casualties, like the property loss, may never be fully known. Ten deaths resulted in the 650-acre ruin of what was once Vanport, Ore., Portland war-built suburb, which was engulfed May 30 and destroyed within thirty minutes by the raging Columbia River. Its 16,000 and more population, including its entire fire department, was made homeless while buildings originally costing $26 million were wiped out.

Property damage in the forty-three Columbia drainage districts, from Troutdale, Ore., to the Pacific, a distance of 122 miles, is variously estimated as high as $100 million, with scores of dead and missing in the area. Between 60,000 and 100,000 persons were evacuated from their homes during the floods, thousands being left homeless.

The entire Columbia River basin felt the flood impact and it is reported that had it not been for the levees erected by the engineers over a period of years and the strenuous efforts of municipal, county, state and government agencies, laboring with civilian volunteers, the disaster would have been appallingly greater. Throughout the entire period of emergency, firemen of paid and volunteer departments played a major role in rescue and evacuation, and in guarding against fires in flooded residential and industrial and farming areas.

Worst Flood Since 1894

The high water, which reached a peak at Portland of 30 feet, three feet below the record height of June, 1894, was the result of a prolonged winter season and delayed spring thaws, with excessive rain, in the areas which feed the tributaries of the great Columbia, the Kootenai, Spokane, Okanogan, Yakima, Snake and Willamette Rivers, in themselves mighty streams.

Portland and its suburbs were hardest hit, just as they were in 1894 when water covered almost the entire business district and rowboats were used to enter and leave buildings. During that emergency, the fire department placed several of its horse-drawn steam fire pumps on barges in order to get them to the scenes of fires in the flood district. Fortunately, at that time there were no serious blazes.

In recent years, a sea wall had been erected along the west side of the shore line in front of the city's congested business section to a height of 29 feet. An earthen fill containing an intercepting sewer was located behind the wall, which was capped with a four-foot parapet. During the recent flood, this wall held back the water except beyond its north end, where the flood spread to the railroad yards and the Union Station, stopping transportation and creating a serious hazard for the firefighters. Erection of emergency bag and earth dikes extending west to the high point of the wall, helped to confine the flood waters from creeping behind the wall at this point and prevented wider damage.

The immediate damage to the City of Portland itself consisted principally of overflowed streets and the flooding of basements in the lower elevations. The halting of railway and some street traffic, and the shutting off of some through thoroughfares necessitated somewhat extensive fire department adjustments to meet the resulting emergencies. Some industrial property along the Willamette, which flows north and south through a large part of the city, was inundated, necessitating plant shutdowns.

On the Columbia River edge of the city, after engulfing Vanport, the high waters covered East Vanport, worked into the Peninsula District, flooding golf courses and truck lands, to finally cover the airport, the Alderwood County Club and entire Multnomah Drainage District.

Chief Grenfell Calls for Army "Ducks"

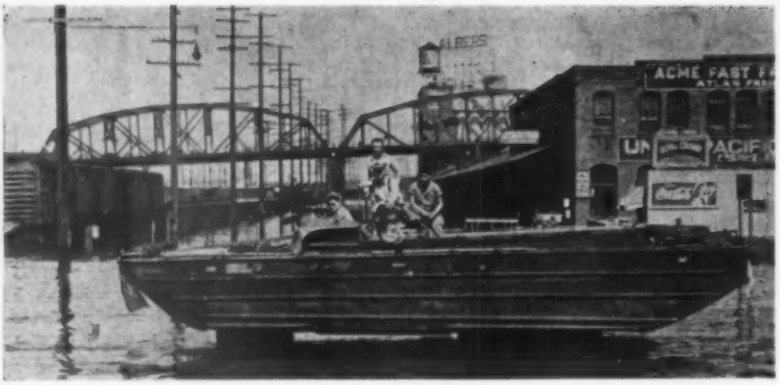
As the magnitude of the flood became manifest in Portland, Fire Chief Edward Grenfell of the Bureau of Fire, called upon the Army Engineers at Fort Lewis for five amphibious "Ducks," or "Dukws," to be official. These were fitted with pumps and 1,000 feet of 2½ inch hose each and disposed in the critical downtown and dock areas to augment the regular department equipment. Other amphibians were employed in rescue and engineering operations throughout the flood area.

Fortunately, there were no greater alarm fires in the regions during the flood period although the department was prepared to cope with them. Departmental operations within the business districts consisted mainly of dewatering basements until private pumping equipment could be obtained, and of seeing that all possible safety precautions were taken to guard against fire.

The Fire Alarm Bureau took action to safeguard its communications' system from the high water. As several boxes along the waterfront were threatened by the flood, they were taken out of the alarm circuits before the rising water completely submerged them. The Bu-

Dike Workers at Vanport Flood Dispatched from Engine 29, Portland, Ore.

*FIRE ENGINEERING is indebted for most of the information contained in this report to the Portland Fire Department, Chief Edward Grenfell, Battalion Chief Edw. Boatright, Captain Jack Lowe and R. E. Cunningham, Chief Operator, Fire Alarm Bureau, who also took the action photographs.



U. S. Army Dukw from Fort Lewis; Several Were Used to Augment Fire Companies in Flooded Areas.

reau also was compelled to rearrange fire department assignments of men and apparatus for the flood's duration when the Morrison Bridge went out of service, so as to provide protection of certain areas. This operation was completed without hitch and no section of the City was left uncovered throughout the period of emergency.

Vanport Wiped Out

On May 30 the flimsily built settlement of Vanport, lying across and slightly upriver from Portland which in its heyday was the second largest city in Oregon, populated by approximately 50,000 war workers, was obliterated by raging waters which gashed through a dike. The frame, two-and-a-half story and smaller multiple dwellings either disintegrated or were carried downriver almost intact.

First accounts placed the dead and missing of the community's 18,700 residents at 715; however, as firemen, police, Red Cross and other workers brought order out of the chaos, the toll was reduced to ten with several remaining unaccounted for.

The story of the end of Vanport, and of the labors of Portland and other firemen to save its inhabitants and to locate and identify the casualties is graphically told in a special report to FIRE ENGINEERING by members of the Portland Bureau of Fire. One of them, Captain Robert E. Cunningham Chief Operator of the Fire Alarm Bureau, not only was present when the flood engulfed Vanport, but was able to progressively photograph its destruction.

Portland Firemen to Rescue

"On Saturday, May 29th," states Captain Cunningham, "some of our men, feeling that the increasing high water could endanger people living in the area between Portland and the Columbia River, conceived the idea of listing all Portland firemen who had small boats, outboard motors and trailers for transporting these boats. We put the call out to all stations (of the Portland Fire Department) and in a very few minutes there was a list of seventy such craft, plus more than 100 men to act in any capacity needed. This call was repeated next day, Sunday, May 30th. More boats and practically the entire fire department were made available.

"I had some personal business in Vanport on that fateful Sunday," continues Captain Cunningham, "so, after being relieved at the Alarm office at 4:00 P.M. I drove to Vanport, arriving about 4:25 P.M.

"I talked to several people in the project and they, as well as myself, were unaware of any special danger. However, upon arriving at a location well near the western end of Cottonwood street, I saw many people hurrying out toward Denver avenue. (Denver avenue is the main thoroughfare from Kenton to Vanport and also Vancouver, Washington.)

"At this time, I learned there was water coming through the railroad fill that marked the western boundary of Vanport (where the railroad tracks were carried on a wooden trestle which some years ago had been filled in with earth to form a dike). Newspaper reports had this same place as leaking Saturday morning and as having been repaired later in the day.

"Older residents, many of them familiar with the floods along the Mississippi, were much alarmed and asked me for a ride to Portland. Younger folk, though, seemed unaware of any danger and went about their usual Sunday routine.

"Driving to the end of Cottonwood street and its junction with Meadowns street to check for myself, I saw water spilling in through what I judged to be about an eight-foot hole in the fill, and flattening out as mud and foam about 300 yards distant.

"I took a couple of pictures and proceeded to pick up a load of evacuees. As we were driving out, everyone seemed to be on the road. By the time we had reached Denver avenue, all northbound traffic, except emergency vehicles, had been stopped."

According to the Captain's and press accounts, the scene was reminiscent of the Johnstown catastrophe of 1889.

Captain Cunningham reports that upon returning to the alarm office the call for the proposed boat rescue pool was under way. Chief Dillaine of the Portland Fire Department issued a call for the department off-shift to report to their stations and it was not long before there were boats, trucks, rescue first aid equipment and manpower, and two-way radio communication facilities on the scene.

According to his account, the eight-foot hole in the fill had enlarged until, at about 5:15 P.M., a 300 foot section of the fill had given away, allowing the flood to come in the form of a six-foot wave which swept the 14-unit houses before it as though they were match boxes. Dozens of these prefabricated war-worker homes were smashed to bits. Furniture, clothing and other personal belongings were floating far from their original moorings. According to Captain Cunningham, had the disaster happened after dark, the casualties would have been in the thousands.

Vanport Firemen Save Apparatus

The Vanport fire department managed to remove its several pieces of fire apparatus and some equipment, but its 56 firemen lost their homes and most of their personal belongings. The department, having no municipal home, temporarily ceased to exist as a unit. Following the disaster, men and apparatus were installed at Swan Island in the Columbia River, where thousands of refugees were quartered in dormatories that form part of the former Kaiser Shipyard.

Engine Company 29 of the Portland Fire Department became the headquarters for all these rescue operations and for the dispatching of trucks, men and sandbags to all threatened dyking areas.

Vanport Flood, May 30, 1948, Showing Wreckage of Dozens of Apartments Caused by Terrific Impact of Flood.

Firemen throughout the Pacific northwest are familiar with the huge J. Stevens Rescue and Disaster Unit, which is maintained in the Portland Fire Department, but dispatched on call throughout the entire northwest. The vehicle, larger than an average motor bus, is equipped with every device for handling emergencies, including two-way radio, operating room, sterilizers, first aid equipment, forcible entry and rescue equipment of every description.

The operations of this unit are contained in a detailed report of Captain Jack Lowe, Rescue Squad No. 1, P. F. D., to Battalion Chief Edw. Boatright. States Captain Lowe:

Captain Arnold Scott of Squad 1 was informed by our operator by telephone at 4:46 P.M., May 30, 1948, that the dike protecting Vanport City had broken and that the area was flooding. The Stevens Car and the Baker Car (another squad unit) both proceeded to the scene, reporting to Multnomah County Deputy Sheriffs at the south intersection of N. Denver Avenue and N. Denver Court.

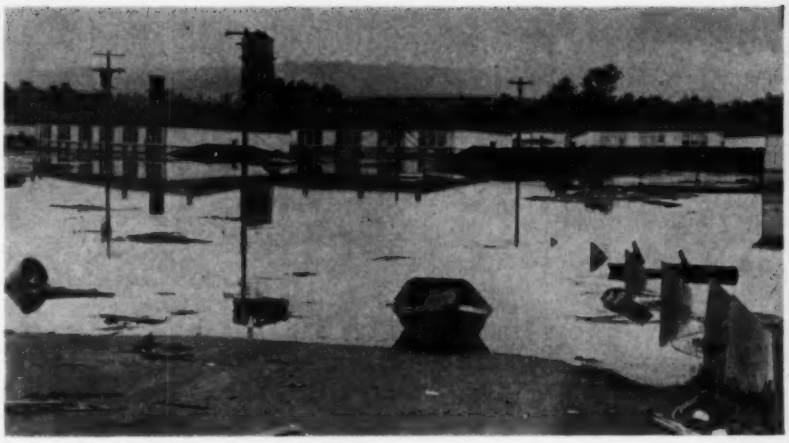
At this point an operational base was established. Communication was effected with the Fire Department Operator, who relayed messages to and from State and County Agencies, the Red Cross, Salvation Army and others. An emergency medical station was established within the car, where were treated numerous persons with serious cuts and in shock or near hysteria. A first-aid station also was set up on the road directly ahead of the Stevens Car to which were taken those persons with minor injuries. All ambulance drivers responding to the incident reported to the Stevens Car, from which point all injured were evacuated to hospitals. There was no shortage of ambulances.

About ten or twelve doctors and approximately the same number of nurses reported to the Stevens Car very soon after its arrival at Vanport. The emergency medical facilities of the car were turned over to them and they operated both the emergency medical station and the first-aid station. Practically every piece of first-aid equipment on the car was utilized. It should also be said that nothing requested by the doctors or nurses was not available or obtained on short notice.

Within a few minutes, members of the Portland Fire Department Volunteer Evacuation Service began to show up with their boats and outboard motors. They were provided with axes, first-aid supplies and blankets and proceeded to rescue persons from floating roof tops and also those trapped within the upper floors of buildings.

A request was made to the Fire Alarm Operator for additional axes to use in opening roofs to search for trapped persons. Almost immediately, it seemed, Portland Fire Department cars arrived with axes and shortly thereafter Coast Guard and Forest Service trucks arrived with still more axes and rope. By this time, off-shift firemen in considerable numbers were appearing for volunteer service.

About 6:00 P.M., or shortly thereafter, an Army officer arrived with five 2½-ton amphibious trucks (Dukws), each truck with four men, including a radio operator. These vehicles reported to the Stevens Car where two doctors with complete first-aid material, and four additional firemen were put aboard. They then proceeded also to search the Vanport area, maintaining communications with their commander by radio.



The End of the Road for Vanport City. One-Way Street Entering Vanport from Denver Avenue at Broadacres Street.

It was apparent that flashlights would be needed after dark, so a request was made to the Operator for them. About 200 new two-cell hand lights and several hundred batteries were delivered to the car before dark.

Generators and Radio Prove Valuable

A great many of the evacuees from Vanport were soaking wet and as the Stevens Car blankets were rapidly depleted, additional blankets were brought from the beds of Engine 21 by the Baker Car. Also, a truckload of baled blankets were procured from a nearby Housing Authority warehouse. These blankets were wrapped around wet and chilled evacuees who were taken to Red Cross headquarters in Kenton.

The Stevens Car served coffee to all evacuees and volunteer workers and was preparing to serve sandwiches when both the Red Cross and the Salvation Army appeared on the scene with ample food and hot and cold drinks for all.

When it became dark, the Stevens Car's portable generators and floodlights were used to light the area around the car and also positions on the dike which were being used as landing points for volunteer search parties. The public address system (with which the Stevens Car is also equipped) was used continuously.

The Stevens unit continued this type of work until the following afternoon at 3:15 P.M., when Governor Hall requested that its public address system be used to carry his evacuation order to residents in the area threatened by possible breaks in the Denver Avenue and Union Avenue fills. The car then cruised twice along Columbia Blvd. from Union Avenue to 47th Avenue and down 47th Avenue to Marine Drive, broadcasting continuously by loud-speaker Governor Hall's order to evacuate.

The unit then returned to Denver Avenue where floodlights and generators were employed to assist the forces attempting at that time to stop the leak in the Denver Avenue fill. When Denver Avenue broke at 8:15 P.M., the car picked up and moved to Union Avenue and Columbia Blvd., where a communications and first-aid center was re-established. By this time the Multnomah County Sheriff had established permanent headquarters with radio facilities on Denver Avenue at Vanport.

Syracuse Furthers Training Facilities

Signalized by simple exercises presided over by Mayor Frank J. Costello and Fire Chief William J. Connelly of the Syracuse Fire Department, a new and complete Training Tower was officially dedicated in that city in August.

The Tower, situated in State Fair Boulevard, between West Genesee street and Hiawatha Boulevard, was erected at a cost of $120,000 and is part of a plant, occupying a plot 300 x 300 feet, comprising a smoke chamber, water cistern with a capacity of 20,000 gallons for drafting—and three hydrants (two h.p. and one l.p.). Ultimately it is planned to erect a building on the grounds which will house both the Fire School and the Hose staff, as well as the department's Maintenance Division. While the Fire School will be located on the Training Tower Grounds, the Fire College will be housed at Fire Headquarters, Engine House No. 12, which is being re-activated as a fire station. The building has been used for the past few years as an annex to the H. W. Smith Technical and Industrial High School.

The new plant in State Fair Boulevard is the first tower and training school, as such, that the fire department has enjoyed since the ancient drill tower was condemned and razed with old Engine House No. 3 on Wyoming street. In the interim, Fire School activities have been carried on in the quarters of Engine Company No. 21, in Onondaga Park.

The Tower is of steel, concrete and brick construction, 30 x 30 feet, five stories in height. Its facilities include a fire-escape, automatic sprinkler and standpipe hose connections, and it is so built that real fires can be started in the basement, third floor and top floor.

The inaugural day program featured nearly all the regular training evolutions carried out by members of Syracuse Fire Department under the direction of Fire School Director James H. Mullaley, Acting Assistant Director Herbert A. Chappel and Lieut. Vernon W. Ackley, Pumper operation instructor.

FOG-FOAM PROVES EFFECTIVE AT AIRPORT FIRE INVOLVING TANKER

Threatening Gasoline Tanker Fire Quickly Controlled by Modified Type 155 Crash Truck Using Fog Foam*

IN thirty seconds on the afternoon of June 24, 1948, a hot gasoline fire that might have had grave consequences was brought under control at LaGuardia Airport, New York City. The fact that there were no grave consequences is a testimonial to well trained, efficient men of The Port of New York Authority emergency crew and their utilization of modern developments in fire-fighting equipment and techniques. Incidentally, the fire provided the first actual use of an Army 155 emergency crash truck that had been modified for the use of fog-foam.

The fire broke out at 5:40 p.m. at the rear end of a tank truck containing 4,000 gallons of aviation gasoline. Orange-colored flames shot fifteen or twenty feet into the air, licking the wing of a DC-6 airliner. At 5:46 p.m. the fire was entirely out and all possibility of re-kindle had been eliminated; the truck and ground around it were blanketed by foam.

Aside from the potential danger to lives, more than $1,300,000 worth of planes and other equipment was saved from destruction. The plane whose wing was over the fire was an American Airlines DC-6, valued at more than $800,000. Only fifty feet away was a Capital Airlines DC-4 valued at nearly $500,000. Several baggage and utility trucks were parked nearby.

So quickly was the fire extinguished that damage was confined to the rear end of the truck and to some freight and mail that was about to be put aboard the DC-6. The plane was undamaged and took off on a commercial flight a few hours later. The gasoline truck was able to drive off under its own power. New York City firemen, responding to the alarm from the Jackson Heights stations outside the airport arrived to find the fire already out.

It has been determined that the blaze as caused when a slip coupling parted in the aft pumping compartment, possibly because of vibration, spraying gasoline over the pump engine. The truck had been topping off the fuel supply in the wing tanks of the plane, and had put in 150 gallons of the 250 needed.

The Air Traffic Control Tower, which is operated by the Civil Aeronautics Administration, sounded the alarm to both the Port Authority Fire and Rescue Crew, and the New York City Fire Department, and alerted all aircraft approaching the field, as well as ground stations. While the fire departments were en route, efforts were made by Port Authority and airlines personnel in the immediate vicinity to fight the blaze with portable extinguishers; but because of the intense heat they were unable to get close enough for their efforts to be effective. Within one minute of the alarm four pieces of Port Authority apparatus arrived and went into action, having raced four-fifths of a mile down the airport apron from the fire house.

Gasoline Tanker Fire After Extinguishment

Rapid attack, using fog-foam quickly snuffed a hot spill fire that threatened large plane (rear) and loaded gasoline tanker. Nose of Model 155 crash truck at right. Note portable extinguishers which were unsuccessful in controlling blaze.

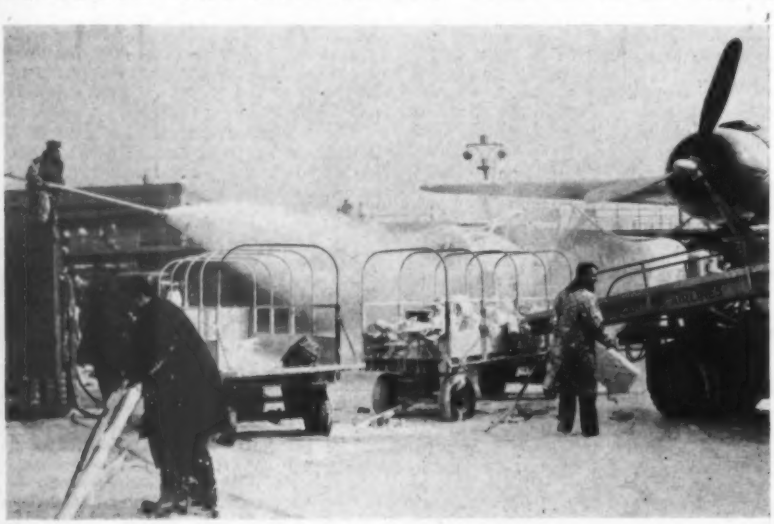
The main unit of Port Authority fire fighting equipment is a Class 155 army type crash truck which has been modified by the Port Authority for fog-foam generation. In addition, other pieces are a Class 125 army type truck with three handlines, two for water and one for liquid foam pickup; a light truck, which is a mobile fast-acting apparatus, and a 2,500-gallon water carrier.

Most of the extinguishment of this fire was accomplished by a turret equipped with a Rockwood R2 ball type valve and special nozzle that delivers 200 gallons of foam a minute. Also aboard the modified 155 are three hand lines which deliver thirty gallons a minute each, and a ground sweep with capacity of ninety gallons a minute.

The nozzle, said to be the first of its kind to be installed, was selected for this specific type of job. It was developed to meet Port Authority requirements in dealing with aviation gasoline and aircraft.

Cooperating in the development were Arno F. Hirschel, the Port Authority's superintendent of mechanical maintenance; R. D. Mahaney, safety engineer at Washington National Airport, and engineers of the Rockwood Sprinkler Co., Worcester, Mass. Experiments were conducted at National Airport and at New York International Airport at Idlewild.

Originally the nozzle on the No. 155



Fog-Foam Controls Hazardous Gasoline Airport Fire in Seconds

A DC-6 and other property at LaGuardia Airport was threatened recently by a blazing gasoline fire when tanker was servicing big plane. Port of New York Authority firemen using modified 155 crash truck are shown in operation as fire was licked.

* The editors are indebted to the Port of New York Authority for this account of what is believed to be the first practical application of fog foam in the Type 155 crash truck applied in extinguishing an actual fire on an American airport.

crash truck was for water and water fog. The task was to adapt the unit so that the needed mixture of foam and water could be delivered at the requisite pressures. This first actual fire operation graphically demonstrated the effectiveness of the new equipment and brought comments in the form of a letter to Billings Wilson, Port Authority Director of Operations from L. G. Fritz, American Airlines Vice President in charge of Operations:

"Please extend the sincere thanks of American Airlines to the members of the LaGuardia Fire and Rescue Unit who did such an excellent job of controlling and extinguishing the fire in a gas truck at Gate 4C, LaGuardia Field, on the evening of last Thursday, June 24. . . . There is no doubt that their prompt response and efficient handling of their apparatus were the main factors in preventing this fire from developing to serious proportions. They set an excellent example of what can be accomplished by a well trained fire squad and are a credit to both the fire fighting profession and to The Port of New York Authority."

All Port Authority Fields to Have This Equipment

As the result of nearly a year of testing, new fire fighting machines are being built for the Port Authority, embodying innovations in design and equipment. Three are on order, one each for LaGuardia, New York International and Newark Airports. The first is scheduled for delivery in four months, the balance in six months.

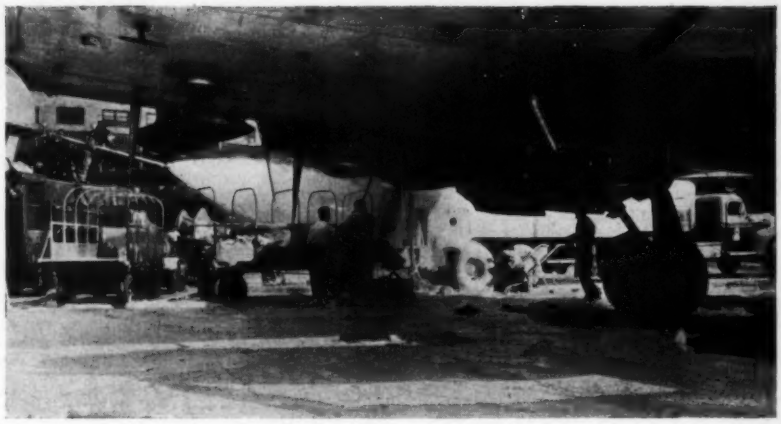
The modified 155 carries 1,000 gallons of water and 75 gallons of liquid foam. The 9 per cent mixture is obtained through a special proportioner. In the June 24 fire 1,500 gallons of water and 90 gallons of liquid foam were used. Upon arrival at the fire the supplementary water carrier truck was connected with No. 155 to replenish the supply. Incidentally, because fighting fires at an airport is likely to take equipment far from a water hydrant, the Port Authority now has on order a tank truck with greater capacity.

For those not entirely familiar with the 155 it may be well to describe its nature. It is regarded at this time as the largest high-pressure water (and now fog-foam) truck; it is a 6 x 6 (six-wheel, six-wheel drive) unit. The engine develops 180 brake horsepower at 2750 R.P.M. Gross weight is approximately 38,000 pounds when loaded with 1,000 gallons of water.

There is a rear-mounted 2- or 4-stage series centrifugal pump with a direct connection from an auxiliary engine. This installation makes unnecessary the usual clutch and transmission systems, which are commonly used on other trucks. Pressure control valves are found at the driver's seat and on the deck in front of the forward turret gun.

The three 100-foot high pressure fog-foam hand lines, the turret nozzle and ground sweep, plus other accessories and materials aboard, make the truck a powerful fire-fighting unit.

The auxiliary water truck was obtained from the New York City Department of Sanitation, which used it to flush the city streets. Because of its large water and pump capacities it is valuable for replenishing fire-fighting units with water. The supplemental water carrier truck can be spotted close to the crash equipment and refills it from the large reserve tank. Its value as an important fire fighting agent is obvious.



Firemen Using Fog-Foam Prevent Re-Kindle in Tanker Fire

Turret pipe with large fog-foam nozzle (left rear) and hand line (right center) operating on rear of tanker as spreading fire is controlled. View is taken from under side of exposed DC-6 plane which was being loaded with passengers and gas at time. Note extent of foam patter.

The water carrier is mounted on a single chassis with a 4 x 2 conventional power drive. The pump is a centrifugal type and is mid-mounted, furnishing 750 gallons at 75 pounds pressure through a single hose. The pump is energized from a power takeoff furnished by the truck engine. Control levers are mounted in the driver's cab, and two of them control the water force. One engages the power drive, the other meters the water flow.

The Class 125 crash truck is mounted on a 4 x 2, half-ton chassis. It weighs about 11,500 pounds with its full load of 300 gallons. Its foam solution tank capacity is 20 gallons, and its pump capacity is 50 to 60 gallons a minute with two hand lines operating. Maximum pump pressure is 600 to 800 pounds per square inch; a relief valve keeps the pressure from above the maximum.

GET SET MIAMI—HERE COMES THE I.A.F.C. BY RAIL, AIR AND ROAD

Three Special Trains From Eastern Seaboard, Midwest and Missouri Valley to High Spot Hegira to '48 Convention!

As the final details of what appears destined to be another record-breaking conference of the nation's fire protection and prevention leaders are being whipped into shape, it is announced that special accommodations are being provided for those who will travel by train to the convention city of Miami.

These accommodations will take the form of special trains to be made up of individual special Pullmans operating from different cities, to converge into "Convention Specials" which will, in turn, follow the major rail arteries to the home of genial host Chief Henry Chase and the Diamond Jubilee meeting.

"Fire Chiefs' Miami Special"

Tapping the New England and Eastern Seaboard areas will be the "Fire Chiefs' Miami Special" of the Seaboard Railway Line, made up of modern reclining-seat coaches, sleeping cars with private rooms and sections, and lounge, dining and observation cars—all air-conditioned, to operate from New York on a speedy one-night-out schedule, making stops at important stations between New York and Columbia, S. C., to entrain passengers. "Fire Chiefs' Special Cars" (sleeping and coaches) through from Boston to Miami will join this train at New York. Stops for entraining will be made at Boston, Providence, New London, New Haven and Bridgeport.

This "Fire Chiefs' Special Train" will be routed over the Pennsylvania, R. F. & P. and Seaboard Railroads.

The Special will leave the Pennsylvania Depot, Manhattan, New York City, Saturday, Nov. 6, at 2:45 P.M., arriving in Miami at 5:00 P.M. on Nov. 7th. The New England Section will leave Boston's South Station (N. Y., N. H. & H. R.R. No. 175, the Colonial) at 9:00 A.M., arriving at the New York Penn. Station at 2:10 P.M.

For details of this Special (and the return accommodations) communicate with the following: Charles T. Smith, Chairman, Transportation Committee (IAFC), The Gamewell Company, Newton Upper Falls, Mass., or H. T. Denning, General Passenger Agent, Seaboard Railway, 630 Fifth Ave., New York 20, N. Y. Information may also be had about all "Specials" from Association Headquarters, Midston House, 22 E. 38th Street, New York, N. Y.

"Stover Special" From Chicago

Midwestern chiefs will rejoice that this year there will be another "Stover Spe-

cial" to speed them in old-time splendor to the Diamond Jubilee Convention. And again, it will be handled by Frank Stover.

The "Stover Special" will leave Chicago over the C. & E. I. R.R. at 12:30 P.M., Saturday, Nov. 6, stopping at Danville and Terre Haute. It is due to leave St. Louis, over the L. & N. R.R. at 2:45 P.M., Saturday, the 6th, making stops at Evansville and Nashville, departing from that city over N. C. & St. L. R.R. at 1:20 A.M., Sunday, Nov. 7 (EST). Next stop will be Atlanta, whence the "Special" will leave over the C. of Ga. Ry. at 10:45 A.M. (EST), Nov. 7th. A stop will be made at Albany (Ga.) whence it will travel over the A. C. L. R.R. (leaving at 4:20 P.M., EST, Sunday, Nov. 7th), to Jacksonville. It is due to leave that city at 8:00 A.M., Monday, Nov. 8—next stop Miami!

Details of this "Stover Special" (including fares) may be secured from either Frank Stover, District Sales Manager, Gamewell Company, 201 N. Wells Street, Chicago, Ill., or Association Headquarters.

Missouri Valley Fire Chiefs' Special

Chief William (Bill) Gardner, president, Missouri Valley Association of Fire Chiefs, has completed arrangements with the Frisco Railroad for a "Fire Chiefs' Special" to run on the schedule of that road's "Kansas City Florida Special, with top accommodations similar to the other "Specials."

The Missouri Valley Special will leave Kansas City at 8:25 P.M. Saturday, Nov. 6, and is due in Miami on the following Monday afternoon. The route will be via Springfield, Mo.; Memphis, Tenn.; Birmingham, Ala.; Atlanta, Ga., and Jacksonville, Fla., with Oklahoma Chiefs joining at Springfield, St. Louis,; Texas and Arizona Chiefs hooking up at Memphis, on Sunday morning, the 7th.

Chief Gardner invites members of the Pacific Coast and Southwestern Associations—and any others who feel so inclined, to join the Missouri Valley and other groups for the trip.

Those who desire reservations, or information should send their requests promptly to R. E. Maring, General Agent, Passenger Department, Frisco Railroad, 103 W. Eleventh street, Kansas City 6, Mo. He is handling all transportation details of the trip for the Missouri Valley Association. He will advise all applicants of their assignment, schedule and fare information (going and returning).

Time to "Roll"

If the interest shown in the forthcoming Diamond Jubilee Convention and the inquiries for information (as well as cash-on-the-line reservations) mean anything, they suggest prompt action in making reservation by all those who contemplate the hegira to Miami. The tariff itinerary sheets and other details will be available by the time this is in type. It is pointed out also, that transportation must be purchased in advance. It is well to check on the matter of tax. Certain municipal employees are entitled to tax exemption and inquiry should be made before remitting funds to the railway companies. It is pointed out that those who are entitled to tax exemption **must** submit a tax exemption certificate with remittance when ordering tickets.

FOUR KILLED IN SEATTLE BY RENDERING PLANT EXPLOSION

Solvents With Low Flash Point Ignite, Wrecking Modern Fish Oil Processing Plant

By William Fitzgerald
Chief, Seattle Fire Department

Editor's Note: **The following account of a violent and costly explosion—in point of lives and property lost, marks another page in the record of catastrophies involving products and processes peculiar to the age in which we live—call it 'chemical,' 'atomic' or what you will.**

Although in point of casualties and property damage, this Seattle explosion cannot compare either with the Los Angeles metalworker perchloric blast with its 17 dead, of February, 1947, or the Texas City holocaust with its hundreds of fatalities of that same year, it is nevertheless interesting to students of fire control and prevention as indicative of some of the peculiar post war hazards with which today's fire service must contend.

The editors are proud to present this exclusive and comprehensive account, told by the man most capable of reporting it—Fire Chief William Fitzgerald of the Seattle Fire Department, who directed operations at the scene.

SHORTLY after 5:30 P.M. on July 6th, 1948, a blast, described by some as of "A-Bomb" proportions, brought death to four men and destroyed the fish processing and meat rendering plant of Lyle Branchflower, Inc., located at Shilshole Avenue and 15th Avenue Northwest, Seattle, Washington. The explosion was followed immediately by a huge black plume of smoke lighted by solvent-fed flames, which leaped high in the air.

Hundreds of windows in industrial plants and dwellings throughout the area were shattered by the blast, which rocked the entire north end of the city and was heard more than ten miles away. Debris and portions of the interior of the wrecked structure were found over two miles distant.

Four men, all of the occupants of the building at the time of the explosion, were killed. Fortunately, less than an hour before the explosion thirty-five of the plant's employes had left the premises, otherwise the loss of life would have been far greater as it is difficult to see how anyone could have survived the shattering blast that tore the modern concrete and steel plant apart.

The Plant and Processes

The Branchflower plant went into operation in the summer of 1944 and is reported to be one of the world's leading producers of vitamin A products from fish livers. It is said that the firm processes 90 per cent of all halibut livers obtained by American fishermen along the Pacific Coast from Alaska to California.

Although processing is the company's principal business, the plant also included a fat-rendering works for tallow production and a chemical research laboratory engaged in a study of oil feeding for livestock.

Shortly after it began operations, the plant became the target of criticism from citizens and commercial groups, which charged that its operation created offensive odors. After hearings before the Board of Public Works, an air-purification unit was installed to eliminate the odors.

It is reliably reported that the Branchflower Company and the Halibut Producers Cooperative, supplying agency of fish livers to Branchflower, were insured for $465,000 on buildings and equipment and $300,000 use and occupancy.

The Branchflower building was a modern reinforced concrete structure, three stories in height, 100 ft. x 100 ft. in area. Immediately west of the main plant is a dock and warehouse and on the opposite side of the canal is located Fishermen's wharf. Adjoining the plant are tracks of the Northern Pacific Railroad and an 18-ton railway tank, the latter being ripped completely off its trucks and hurled on its side.

The blast completely demolished the Branchflower building, the force being so great that a 20-ft. square section of an 8-in. concrete wall was blown a distance of 90 feet from the building. The blast and fire seriously threatened the 15th Avenue West bridge, one of the principal arteries leading to the north end of the city.

The fire, which instantly followed the explosion, involved Shell Solvent A, a mixture of heptane and hexane used in the industrial processes. The flash point of this solvent is 40 deg. F.

The explosion was apparently caused by solvent fumes which were ignited by an open electric motor operating a skimmer pump in the fish processing plant.

Two processes were carried on in the building in separate portions of the structure, separated by a solid concrete fire wall. One involved processing fish and fish livers for extraction of oil and vitamins. This part of the plant was not the source of the explosion.

The second portion of the plant contained a process for extracting fat and tallow from waste meat and bone, the residue being processed for chicken feed. In operation, retort cookers of 180 cubic feet capacity were filled with waste bone and meat and cooked with steam at 475 deg. F. for a period of one to four hours. In the cooking process, the material was dehydrated by vapors passing out a vent to a jet condenser. When cooking was completed, the material was allowed to cool to 175 deg. F.

At this juncture, the condenser lead valve was closed and the solvent lead valve opened, and solvent introduced

into the mass by pumping. Following this, cooking continued for one-half to one-and-one-half hours, a hydrometer being used to check the solvent for fat content.

When this process was completed, solvent was pumped into the settling tank for mechanical separation of the fat and solvent and allowed to stand for a 24-hour period. This tank was of approximately 1500 gallons capacity. The top was skimmed off this tank by pumping the fat solvent solution to a still to reclaim the solvent, then from the still to the condenser, then to a 2,000-gallon tank. This solvent wash process was repeated four times.

The residue left in the settling tank was then re-introduced into a retort cooker where it was pressurized and heated to 175-deg. F. to drive the solvent into a still for reclaiming. About 500 gallons of solvent was involved in this process. When this solvent is reintroduced into the tank, a 15-in. dome cover is usually left open until the retort is full, ready to start the processing. This was the situation when the workers changed shifts at 4:00 P.M., the day of the disaster. At that time the day man informed the assistant engineer coming on duty at 4:00 o'clock that the dome cover was open.

Apparently without closing the dome cover, the assistant engineer started the cooking process, which vented solvent fumes through the open cover and they escaped throughout the plant, finally concentrating in the lower levels, the fish meal room and fish oil storage vault. Subsequent investigation found the cover open and the cooking valves open, indicating that the cooking process had been carried on without closing the dome cover.

In some manner, probably as said, from an electric motor operating the skimmer in the fish oil section of the plant, an ordinarily non-hazardous area, the fumes were ignited and the terrific blast followed.

About 3,000 gallons of solvent are used in the plant every day in the working processes. The structure, as previously reported, was modern and built under permit by the Seattle Building Department, the plans and processes being filed at the issuance of the permit.

Radio Important in Operations

The first alarm was received by the fire department at 5:34 P.M., from box 4314 at 14th Avenue Northwest and West 47th Street. This brought Engines 18, 35, 20; Ladder 8 and Chief 4.

The first arriving company officer immediately sounded a second alarm via radio from the company's radio-equipped apparatus. This was logged at 5:36 P.M., and was responded to by Engines 9, 11, 21; Ladder 6 and Chief 2. It also brought the Chief and Assistant Chiefs of Department.

At 5:50 P.M. a special call brought Engine Company 2 to the scene.

Radio played an important role in this crisis, as it does in all Seattle fires. The second alarm was radioed in before the arrival of the District Chief. By radio, also, the additional company was summoned, as were ambulances, additional police help, the coroner and line crews to cut down the "hot" electric wires.

Upon arrival, firemen found the plant completely demolished by the explosion and solvent involved in fire. Three workers on duty at the dock and warehouse to the west of the plant had been knocked down but miraculously escaped injury. They fled across the canal in a fishing boat. Three section hands of the Northern Pacific Railroad, standing less than 80 feet from the explosion also escaped injury.

Three of the victims were doubtless killed instantly, two being buried in the wreckage. One body was found clear of the wreckage and the fourth victim was blown sixty feet through a doorway onto the railroad tracks north of the plant, and critically injured.

The first-due company placed a 1¾-in. stream in operation, using 3½ in. hose and two 2½-in. hand lines. The second due company operated a 1¾ in. stream from two 2½-in. lines siamesed into a deluge set. The special-called engine company placed a jumbo fog nozzle in operation to protect the threatened bridge structure, using 3½ in. hose.

The other engine companies operated hand lines. Six of the seven engine companies responding hooked up pumpers, four tandem, two to a hydrant.

The first-due ladder company recovered one body which had been blown from the building by the explosion, and worked around the plant searching for other casualties. Company members found one man seriously burned and injured, rendered first aid, and dispatched the victim to the hospital by ambulance. He later died.

The second-due ladder company assisted engine companies in laying lines, there being no ladder work involved. Later they worked at overhauling and the recovery of bodies from the ruins.

The fire was knocked down by hose streams in 28 minutes, after which all water lines were shut down and the remaining fire extinguished by two portable foam nozzles.

Firemen were given considerable trouble when a power line dropped on a pumper. One fireman, R. J. Blucker, of Engine 10, suffered burned hands and shock. This occurred at the outset of the fire, the 4,400 volt line, having to be cleared from the pumper before the latter could go into action. Assistant Fire Chief R. B. Rogers also felt the effects of the charge and was sent home after treatment by Dr. Frank Maxson, fire department surgeon. One fireman, Pat Madigan of Engine 2, suffered back injuries by being thrown by a "wild" nozzle. He was hospitalized.

The property loss was estimated at $350,000. Explosion damage to structures in the surrounding area is not estimated at this writing.

July Fire Losses

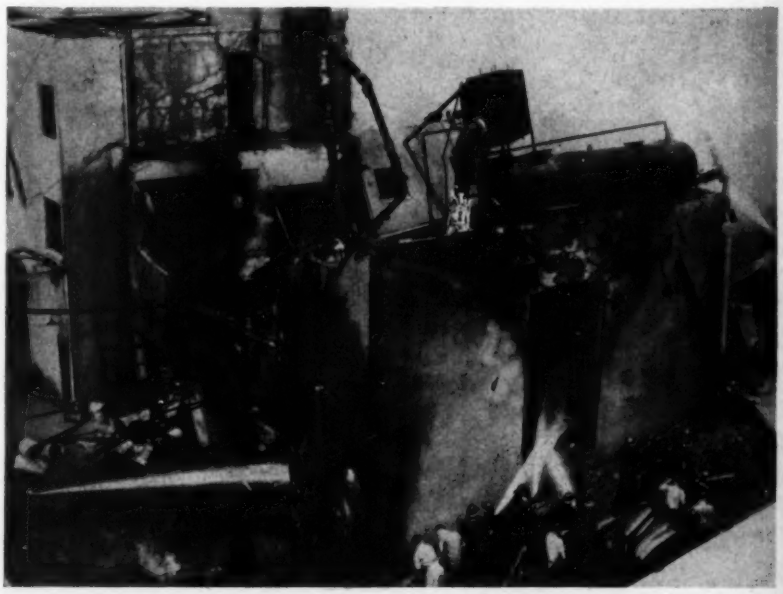
Estimated fire losses in the United States continued their upward movement during July, with a total destruction of $50,955,000 worth of property, it was announced by W. E. Mallalieu, general manager of the National Board of Fire Underwriters.

This loss was 3.2% higher than losses of $49,357,000 during July, 1947, and represents a seasonal decline of 6.9% from losses of $54,706,000 in June, 1948.

July's fire waste added, however, to the all-time high level of fire destruction for the year to date and for the past 12 months. The total for the first seven months of 1948 was brought up to $437,435,000, far exceeding the total fire destruction for the full year of 1944, which totaled $423,538,000.

July's losses brought the total for the 12-month period ending July 31 to a record breaking $711,437,000, a figure of fire destruction never before reached in U. S. history. This represents an increase of 10.8% over losses of $641,816,000 for the 12-month period ending July 31, 1947.

These estimates of national fire losses are based on reported losses under fire insurance policies, including an allowance for uninsured and unreported losses.



Blast Wrecks Refinery and Kills Four at Seattle

Four plant employees lost their lives when this halibut oil refinery exploded on July 6, and completely demolished the plant as indicated above. Flammable solvents employed in the processing of fish and animal oil provided the gas mixture which caused the explosion.

Short Cuts and Gadgets

MORE ABOUT MARKING PASSAGEWAYS

Our suggested "short cuts" for marking passageways, aisles and openings through which the fire department may operate, in previous issues of FIRE ENGINEERING, have provoked additional contributions.

The latest is from R. F. McDirmid, Captain, Inspection Division, Spokane, Wash., Fire Department.

Captain McDirmid writes: "Regarding the article on the round circle in in "Short Cuts and Gadgets" of your July issue, the Spokane Fire Department has been using a similar marking for the past year for the same purpose (see the accompanying sketch). Up till now we thought it was our idea. Anyway, it is a good one.

"The Inspection Division sees that this is done on warehouses, factories and the like. Markings are below the windows or on the windows inside and outside, to indicate clear passageways."

The Spokane idea calls for a wavy white line through a red circle, as shown, which we're inclined to believe might give greater visibility than the plain white circle previously described in "Short Cuts."

* * *

The Old Timer Says—

Having a good knowledge of the fire building and its contents is about equal to having a second alarm assignment right on hand! Of course, it depends upon what you do with your knowledge of the situation that counts!

* * *

"IDEA BOWL" A NEW IDEA

The Syracuse Fire Department has recently inaugurated what may be an innovation in fire department administration and that is something in the nature of a "short cut."

This is a "system" which provides for the presentation by fire department personnel of ideas designed for "increasing the efficiency and effectiveness in fire prevention and fire protection work," to quote Chief William J. Connelly. The program was introduced coincidental with the launching of the Fire Department's new Training Tower.

Under the new plan, officers and firemen are invited to deposit their suggestions in an "idea bowl." The suggestions are to be made out in writing either at the Fire School or at Company quarters and placed in sealed envelopes. They will then be forwarded to the office of the Chief of Fire where they will be placed in the bowl, following which their merits will be passed upon individually by a committee.

To spur interest in the idea, Chief Connelly has announced suitable rewards will be made to the originators or authors of the winning ideas. The officer or fireman presenting the best proposal is to receive one week's added vacation. Six days' vacation is to be awarded as second prize; four days for fourth prize; three days for fifth prize; two days for sixth prize, and one day for seventh place winner.

* * *

SPOTLIGHTING THE ALARM BOX

Fire alarm signal boxes, or "stations" as some departments designate them, are identified in a number of ways: by distinctive color of box and pedestal; by lights—red, orange, blue, violet blue and other shades; by stripes, signs and insignias. In some cities little or no attempt is made to spotlight these alarm boxes. They are mounted on telephone or other poles, with no identifying symbols; they are sometimes hidden from the passersby—their location blocked by foliage, parked cars, poles, signs, newsstands, and so on. Or they may be mounted on the side of a building, at some distance from the usually prescribed corner location.

Where boxes are located at hospitals, nursing homes, schools, places of public assembly and factories—at which points they are more critically needed than are boxes in almost any other section of a municipality—it frequently happens that they are hung on the building exterior or in the entranceway. It is not unusual to see private or auxiliary and "master" signal boxes located in inaccessible or concealed places, or made inaccessible by storage stockpiles, or plant equipment.

It is not always as easy to identify the locations of interior alarm boxes, and those mounted on exterior walls of structures, especially where the red box is mounted on a red brick or other painted surface. In some plants, identifying symbols such as arrows, or lettering indicate box locations; in others, lights are employed for the purposes. Still others adopt both measures. But there are no standard markings or other identifying characteristics. The nearest thing to it was the recommendations in the National Fire Code, which read:

"In general it is considered that a box should be plainly visible from the main entrance of any building in congested areas.

"In mercantile or manufacturing districts it should not be necessary to traverse more than one block nor more than 300 feet to reach a box; in closely built residential districts this distance should not exceed one block or 500 feet; and in other residential districts this distance should not exceed three blocks, or 1,000 feet along or toward the main artery of travel.

"Boxes shall be conspicuously located, at street corners where practicable. The box and portion of the supporting pole or post shall be painted 'Signal' red, preferably with white stripes above and below the red. A special colored light shall be provided at or near every box in closely built sections, to indicate location at night."

One other point is made in this Code which is commonly overlooked by fire departments. It reads thus:

"Where firemen are not normally on duty at fire stations, a fire alarm box shall be provided at each station, located where constantly accessible to the public."

All this is prefatory to another idea for identifying plant alarm boxes submitted by Raymond G. Lee of Rochester, N. Y. His suggestion is not new, or unusual, but it is worth passing along if for no other reason than to remind plant and other fire engineers of the wisdom of checking on their own alarm systems and boxes. Contributor Lee says: "Here's a 'short cut' that may prove useful to plant fire engineering representatives.

"Paint a solid white circle of 12 or 18 inches around all plant auxiliary and master fire alarm boxes, whether located on the outside wall or inside wall of your plant.

"In my opinion, this would make employees more aware of the fire alarm box location and it would make all fire boxes visible for a greater distance."

* * *

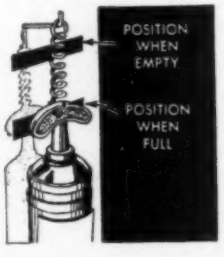
The Old Timer Says—

In spite of the fact that custom has demonstrated the decided value of a fire prevention division or bureau, or whatever you wanta call it, in the fire department, it's surprisin' how few departments have 'em.

* * *

TELLS WHEN EXTINGUISHER IS EMPTY

This one is borrowed from *Popular Mechanics* of July, 1947, with the permission of the publishers. In order to make sure that fire extinguishers would not be overlooked when they were



empty, one store manager conceived the idea of hanging them from supporting hooks by means of springs. Lines were painted on the wall to indicate the position of the full and empty containers. When full, the extinguisher is at the lower mark; when empty, at the higher one.

Popular Mechanics credited G. E. Hendrickson, Argyle, Wis., with the idea. Nothing was mentioned about the "short cut" being patented or copyrighted. P.S. Some veteran safety engineers are going to say this is well and good, but it isn't going to correct the bad habit so widely encountered of removing the carbon tet' from this type extinguisher, for use as cleaning fluid, and substituting water! When somebody licks that handicap they will really have a short cut!

News of the Manufacturers

New Fire Department Light

A new light for fire fighters has been announced by the Julian A. McDermott Corporation of Corona, New York. Known as the model A-25 Utility light, it combines a sealed beam floodlight

New McDermott Fire Department Light

with a flashing red warning signal and is operable either from its own battery or through an extension cord from the truck lighting system.

The sealed beam floodlight is adequate to light up areas and passages at fires or scenes of accidents, and for repairs and adjustment of apparatus. The flashing warning light is useful for controlling traffic, marking hose lines and dangerous interior areas as well as locating parked apparatus.

Foam Proportioner

An inline proportioner is announced for maintaining proper proportions while operating at pressures ranging from 40 to 150 psi.

This new development for feeding liquid foam into water lines eliminates the use of a pump.

It will proportion 6 parts of foam liquid to 94 parts of water, at any point along the line (other proportions if desired). It can be attached directly to a hydrant, or placed on the ground between lengths of hose, or permanently mounted on a fire truck.

The new proportioner can also be used to feed 1% wetting agent to lines similar to the method used in proportioning the liquid foam. It will pick up foam or wetting agents from 5 gallon cans, 50 gallon drums or from built-in tanks.

It is made by Aladdin Proportioning Equipment Co., Inc., 119 West 57th Street, New York 19, N. Y.

Chicago Adds Ten New Aerials

Stepping up its program to bring its motorized fire apparatus up-to-date, and permit a complete turnover of all equipment every twenty years, the City of Chicago has purchased ten new FWD aerial ladder trucks. The new ladders will replace ten of the fifty-four aerials now owned by the department.

The new units will be the tractor-trailer type, with 85 ft. wood ladders and rear tiller operation. Ground ladders will be arranged in double banks on the trailer. A nozzle especially designed by the Chicago Fire Department will be mounted on the fly of the ladder.

The ladders will be equipped with three-man all-steel safety cabs and painted Chicago fire apparatus red. They will be manned by seven-man crews, it is reported.

The Chicago Fire Department numbers 3,500 uniformed firemen and in 1947 the department answered 59,000 alarms.

Ansul Announces Changes

F. J. "Jim" Hood has been elected president of Ansul Chemical Company, Marinette, Wisconsin. He succeeds Harvey V. Higley, who has been named chairman of the board of directors.

F. J. Hood

Hood joined Ansul's California office in 1928. He worked in sales for eight years, returning to Marinette in 1936. In 1938 he was elected secretary and treasurer of the company. He was promoted to vice president in 1945.

Ansul's new chief executive is a past president of Refrigeration Equipment Manufacturers Association. He is also a member of American Society of Refrigerating Engineers and Refrigeration Service Engineers Society.

Other officers elected by Ansul are R. C. Hood, vice president; H. C. Higley, secretary; J. F. Asell, treasurer; and S. R. Holmquist, comptroller and assistant treasurer.

Franklin Wedge.

Franklin Wedge, former eastern manager for Ansul Chemical Company, has been appointed assistant to the president. He has moved from Philadelphia to the company's main office at Marinette, Wisconsin.

With this assignment, Mr. Wedge climaxes an 18-year career with Ansul. He is a member of the American Society of Refrigerating Engineers as well as the American Chemical Society.

Wedge was graduated from the Sheffield Scientific School of Yale University, class of 1918.

Novel Fund-Raising Display

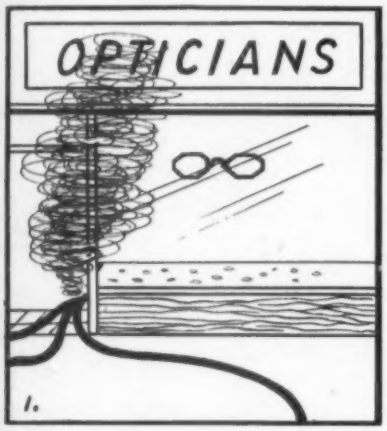
A novel method in fund-raising drives for resuscitator equipment for fire departments was recently introduced by the E & J Manufacturing Co., and has proven successful throughout the country, particularly in smaller communities.

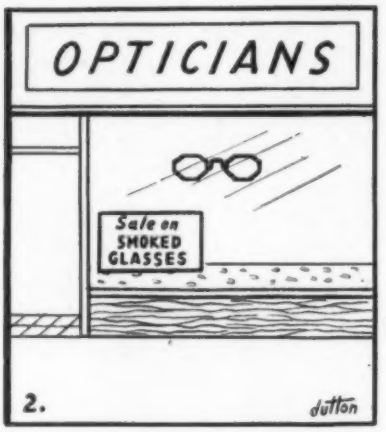
The fund-raising campaign centers around a set of display panels, furnished without charge by the E & J Company. Photographs and text on the panels dramatize the types of accident—drowning, monoxide poisoning, smoke suffocation, etc.—in which efficient resuscitation may mean the difference be-

(*Continued on page* 608)

Pictured Here Is a Set of Display Panels in Use in a Department Store Window During a Drive to Raise Funds for Purchase of a Rescuscitator for the Local Fire Department. Contributors Were Given Tickets on a Drawing for the Merchant-Donated Prizes Shown in Foreground.

FALSE ALARMS





Page Emily Post!

A new waiter at the Colony Club served a woman in extreme decolete. As she stooped to recover her napkin, a part of her anatomy popped out. The waiter adroitly put it back for her.

The captain noted this and called the waiter over. "Francois, where did you work before you came here?" he asked.

"Oh, at the Marguery, the Ambassador, at Pierre's—you know where I worked—you have my references."

"Did you do that sort of thing where you worked before?" asked the captain.

"Certainly, when necessary," said Francois.

"Well, you are now working at the Colony Club. Hereafter when a similar situation occurs, please use two warm spoons."

An extremely fat woman attired in a rather gloomy pair of slacks passed the Farmers' Market in Birmingham. She was moving at a surprisingly fast pace, and the strange spectacle she presented from the rear seemed to excite the risibilities of an old farmer standing nearby.

Catching the eye of another spectator, he observed with a chuckle: "Bud, I never thought I'd live to see a sight like that—looks like two boys a 'fightin' under a blanket."

1st Mechanic: "What kind of a dentist is Dr. Pullum?"

2nd Mechanic: "Oh, he's great. Every time he extracts a tooth, he gives you a glass of whiskey."

1st Mechanic: "Do you still go to him regularly?"

2nd Mechanic: "Not any more. I've run out of teeth."

An irascible couple living in a suburb were marked for revenge by the kiddies for their many unkind actions. Did the children stick pins in the doorbell? Did they soap the windows? No siree! They planted a "For Rent" sign in front of the lawn hedge, where it was invisible from the house, and the couple got callers after callers before they found out what was going on.

Mrs. Newrich was fond of flowers, especially salvia, but was not very reliable in getting names right.

"On this side of the walk," she said to her gardener, "I want you to put out some salivas, Now what would you suggest for the other side?"

"Well, ma'am," said the gardener, "maybe we should put the spitoonias on the other side."

When the white men discovered this country, the Indians were running it. There were no taxes. There was no debt. The women did all the work. And the white men thought they could improve on a system like that!

Alias

The hillbilly, with a dizzy blonde hanging on his arm, took the pen handed him by the hotel clerk and signed the register with an X. With a thoughtful look on his face, he hesitated, then circled the X.

"A lot of people sign with an X," said the clerk, "but that's the first time I've ever seen it circled."

"'Taint nuthin' so dadburn odd about hit," retorted the hayseed. "When I'm a'runnin' around with wild women I don't use my right name."

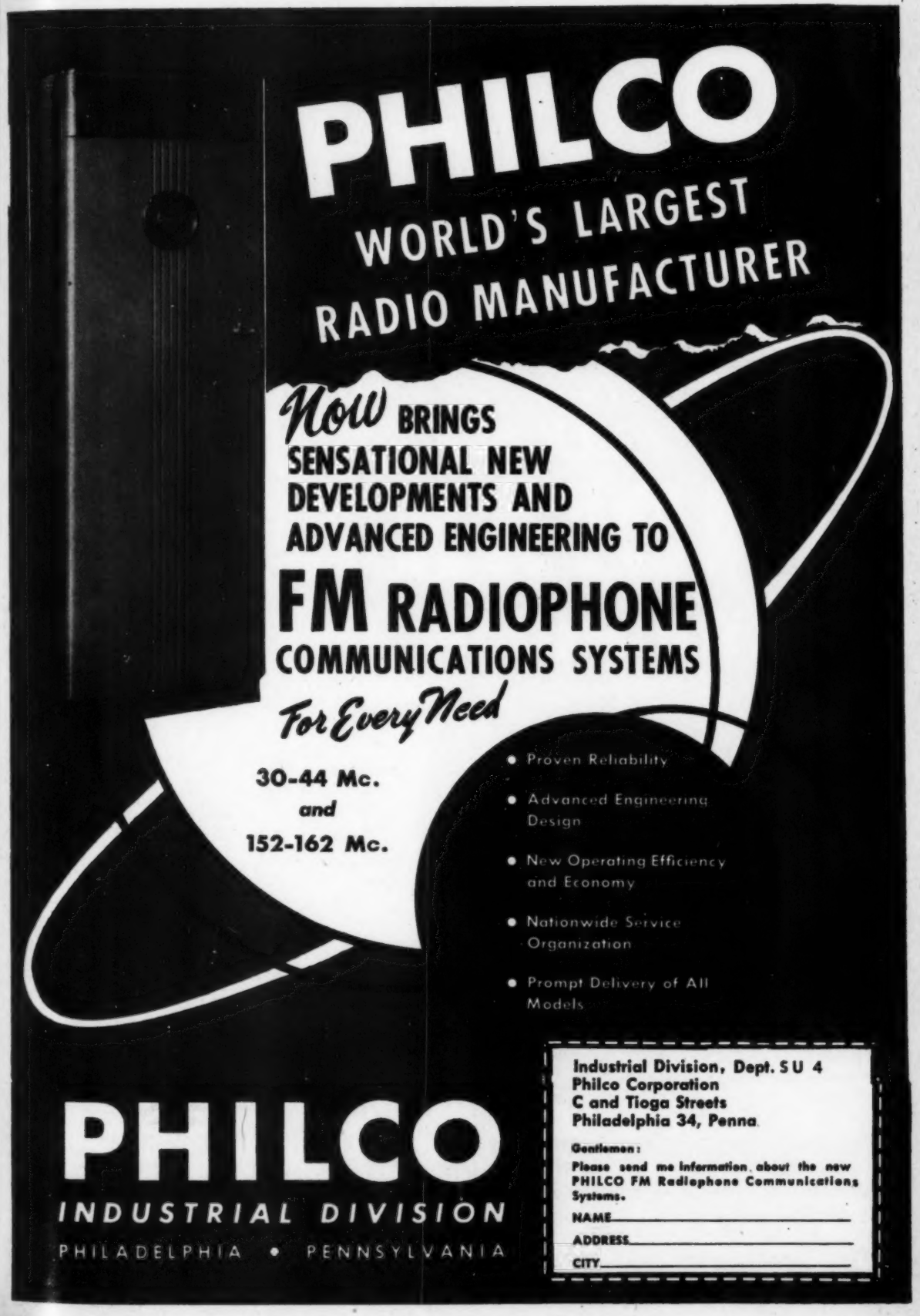
"Is it a modern farm house?"
"No. Five rooms and path."

So often it is the case that the first screw to get loose in a person's head is the one that controls the tongue.

A man about to be electrocuted phoned his lawyer from the death chamber. "They are about to put me in the electric chair," he said. "You are my lawyer—what do I do now?" The lawyer answered helpfully "Don't sit down."

Keeping the wolf from the door isn't the only problem the modern family faces today; it's what happens after daughter lets him in.

"His wife's out shopping today, so he doesn't dare miss a word of her favorite soap opera!"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World Wide Fire News

By Roi B. Woolley

Fighting Chaplain Cited

The fire-fighting chaplain of Giessen, France, Norris T. Morton, was recently honored with a citation from the French Army for his services to the fire departments of Europe during the past two years.

Presented in Paris on June 24 by Lt. Col. Maurice Feger, chief of that city's fire department, the citation was accompanied by an embossed certificate of honorary membership in the Paris Fire Department, an official fire department badge and a silver fireman's helmet.

In presenting the award, Col. Feger said: "There are no foreigners among firemen. We are all one big family, pledged to work for mankind." Seventy French Army officers, all of whom are connected with the fire department, were present at the ceremony which took place in "Le Chambre d'Honneur" at Paris Fire Department Headquarters on Place Jules-Reyard.—SOUTHWORTH LANCASTER.

* * *

Radar May Have Set Fire

Further evidence on the possibility of radar exploding photographer's flashlight blubs and thus causing fire is contained in an Army report, issued earlier this year, on a fire in a mail ship on April 27, 1948, that may have been started by such means.

The report covers a fire aboard the S.S. American Producer, which destroyed 156 sacks of mail and damaged 2,431. The ship was en route to Bremerhaven, Germany, from the United States at the time, and the burned cargo was in the hold of the ship.

Army officials at Bremerhaven reported: "Examination of the ashes at the base of the fire revealed broken glass and cans of photo supplies, and it is believed the fire was started by spontaneous combustion (ignition) of materials or possibly the explosion of flash bulbs contained in some parcel in the mail bags. Explosion of the flash bulbs could have been caused by the ship's radar."

Although it is said airlines have been instructed to refuse transportation of flash bulbs because of the possibilities of their being "flashed" by radar, the editors of FIRE ENGINEERING have thus far received no official confirmation of this action—nor has there been received any official government report or ruling on such hazards.

* * *

Mailbag Blast Injures Five

A Brooklyn, N. Y., postal employe received injuries requiring hospital treatment and three other postoffice workers and a fireman suffered slight burns when a chemical reaction from broken packages started a fire in a sub-station of the postoffice system in the Bushwick section of Brooklyn.

The explosion occurred at 5:00 P.M., when a wooden keg fell off a hand cart. The yellow powder (said to be used for bleaching) that spilled out mixed with hair dye from an 8-ounce bottle which also toppled off, setting up a chemical reaction, and a series of muffled explosions followed. When workers attempt-

ed to scoop up the yellow powder with cardboard, a more violent explosion occurred, and the odor of sulphur from the hair dye and dense smoke filled the station.

Firemen were summoned and the resulting fire was quickly extinguished although one fireman received slight burns in the operation. The smoke given off by the chemical reaction caused some discomfort.

* * *

Gusher Shuts Down Canadian Oil Field

Fire and explosion hazards from a runaway oil well near Leduc, 16 miles south of Edmonton, Alberta, forced extreme precautions and halted output of the entire oil field.

The well, known as Atlantic Oil Co.'s No. 3, had gushed uncontrolled for over two months; its flow of 10,000 barrels of oil daily was greater than that of the remainder of the field combined, and far in excess of the capacity of the existing equipment to handle it. Earth for two miles around was saturated, while an estimated 75,000,000 cubic feet of gas daily bubbled through thousands of punctures in the ground to create an explosion hazard.

Aircraft were forbidden to fly over the area lest a spark from an engine touch off a major disaster. Workers were required to leave all smoking equipment behind. Sightseers were banned. The valves of all 60 producing wells in the field were shut off as the Alberta government took over the job of safeguarding the field.

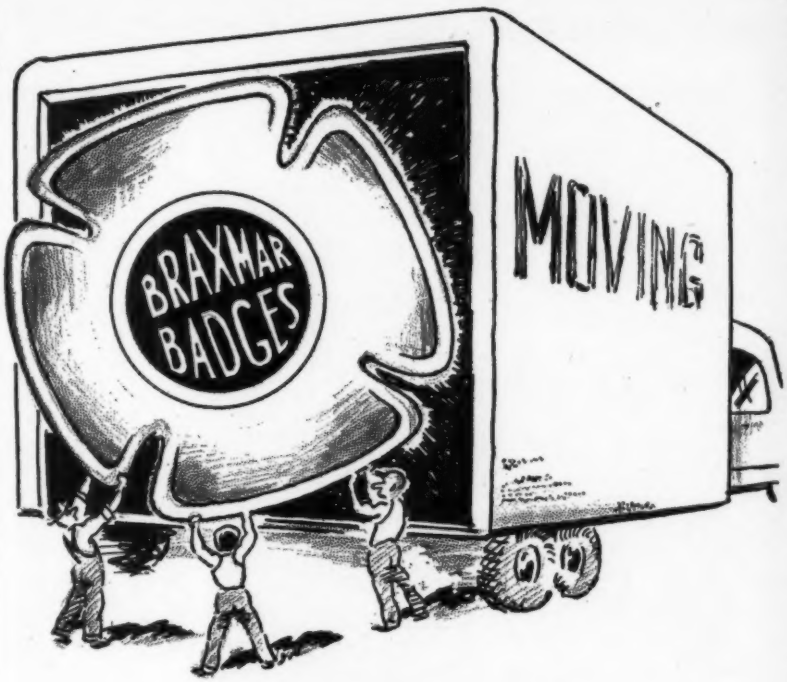
The shutdown, which lasted three weeks, was said to have resulted in a possible loss of $5,000,000, although oil company officials deprecated the reports of possible major hazards. They explained that "there was definite danger of both fire and explosions in the immediate vicinity of No. 3 well, but this was confined to an area of about 10 acres around that well, and well within the 40-acre site of the well which is enclosed by a 20-foot dike."

The first task was to drain away the surface oil, reported at 60,000 barrels, after which efforts were made to bring the gushing well under control. It has not been reported at this writing whether this was accomplished, or the well sealed.

* * *

Hot Off the News Ticker

An explosion in a steam air-drying plant at the Hercules Powder Company rocked Kenvil, N. J., on July 26 but no casualties were reported. In June three persons were killed when a series of explosions wrecked part of the same plant. . . . In Meredosia, Ill., two men were killed and three others critically injured July 29 when 17 sticks of dynamite in a truck exploded. . . . Explosion in an ammunition dump at Epinal, in Eastern France, damaged buildings, broke windows over a wide area and injured several persons. No deaths were reported. The ceiling of the City Hall caved in and part of the prison damaged. Some 60,000 artillery shells, aerial torpedos and bombs, most of them left by the U. S. Army, were in the dump. . . . Fire destroyed part of the big Seng rubber factory at Singapore, with estimated damage of $800,000. Arson was suspected. . . . A call for 3,500 auxiliary police and firemen to prepare the city of Newark, N. J., for "atomic bomb attacks" was issued July 24, 1948 by Pub-



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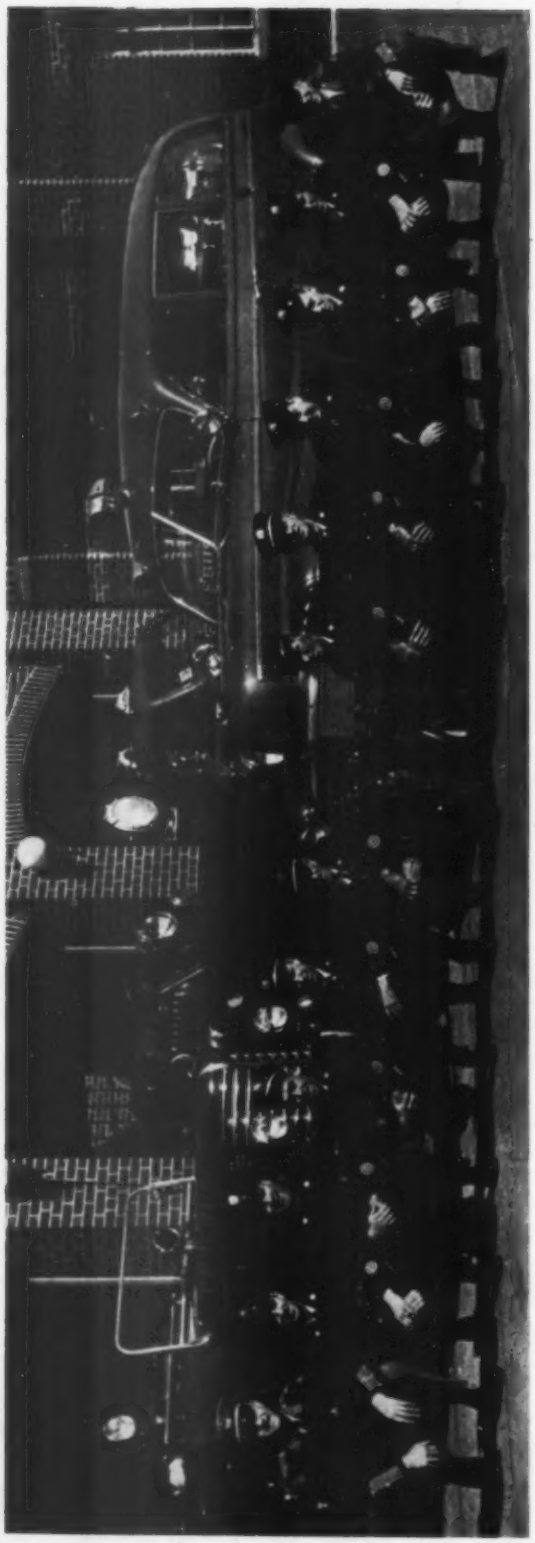


PHOEBUS, VIRGINIA, DEPARTMENT PERSONNEL AND EQUIPMENT

Extreme left, Chief Engineer R. F. Snow. Center, the department's new triple E & J Portable Resuscitator that can be used to revive three asphyxia victims simultaneously. Phoebus, like so many hundreds of other departments in the nation, selected *genuine* E & J equipment because it offers genuine value and dependability for the money...because friendly E & J representatives train personnel in operation of the instrument at no charge...because of E & J's nationwide network of service centers. Your department should have this kind of protection...see for yourself. Write now for a demonstration. There's no obligation whatsoever. Dept. K-9, E & J Resuscitators, 6116 San Fernando Rd., Glendale 1, Calif.

lic Affairs Director John B. Keenan. . . . When a B-25 light bomber overshot the runway in landing at Newark Airport, Newark, N. J., it crashed and burned. Maj. Gen. Robert M. Webster, Commanding General, First Air Force, and three other occupants of the plane were able to escape the wreck. . . . Inspectors probed the explosion in the King's coal mine, Princeton, Ind., which claimed the death of thirteen. The disaster followed a blast and fire of last November which closed the mine for more than two months. . . . Anonymous phone calls to the New York police that a time bomb had been placed aboard the S.S. Queen Elizabeth resulted in a fruitless search by the crew under guidance of the Police Department, with a New York Fire Department engine company standing by. . . . At Port Deposit, Md., an Air Force reconnaissance plane crashed into a general store and burned, Aug. 1. The pilot parachuted to safety. . . . The Civil Aeronautics Board conducted extensive investigations into the fire that destroyed two hangars of the Rausch Flying Service and Safair Flying School and fifty-six planes at the Teterboro Air Terminal, N. J., July 10th, with loss estimated at $500,000. . . . Two Air Force planes collided and crashed at 3,000 feet near San Antonio, Tex., Aug. 6, killing two flight instructors and two student pilots. One plane narrowly missed a farm house. . . . Vatican City was shaken, and thrown into considerable uproar, Aug. 3., by the detonation of a bomb which was planted in a collonade in front of St. Peter's Basilica. Damage was trifling and there were no casualties. . . . A $10,000 suit against the LaSalle Hotel, Chicago, Ill., was settled for $1,000 by the estate of one of sixty-one victims of the June 5, 1946, hotel fire. . . . U. S. Air Force officials announced, Aug. 7, that two Americans, eleven Filipinos and fifty natives were killed the day before at Ie Shima in the explosion of a landing craft which was loading ammunition for transfer to Okinawa. . . . When about 140,000 rounds of three-inch artillery shells exploded on the night of Aug. 6 in a chain of blasts, the Pueblo Ordnance Depot, near Pueblo, Colo., got a seven-hour shaking up. There were no reported casualties. Fifth Army headquarters said a fire broke out in the ammunition dump during a violent storm. . . . In Shanghai on Aug. 8 fifty-one workers were reported killed and at least forty others injured in a shirt factory fire started by lightning. . . . A fire, described by the Vatican office as "another good scare," broke out at a Vatican gasoline distribution system Aug. 7. It was extinguished before it could spread to underground stores. This was the second "incident" at the Vatican since Pope Pius left for his summer retreat at Castel Gandolfo. . . . A power breakdown at the Claymont plant of General Chemical Division of the Allied Chemical & Dye Corporation the night of Aug. 2 loosed sulphur dioxide fumes over a wide area. Prolonged coughing and smarting eyes brought nearby residents discomfort but the fumes were reported harmless. The same area was shaken twenty-four hours before by an explosion in another of the company's plants. . . . A thirteen-year-old boy was killed and his brother critically injured at Port Angeles,Wash., when a log they were sawing up for firewood on an abandoned artillery range exploded. The boys' saw apparently bit into a live shell imbedded in the log.

Persons in the News

Kehoe With Atomic Energy Commission

Edward J. Kehoe, who has for some time held the position of Fire Marshal for the Third Naval District and administered the post-war safety reorganization of Naval installations in that area, has become associated with the office of New York Directed Operations, U. S. Atomic Energy Commission, as Fire Prevention and Safety Engineer.

As a naval officer during the late war, Mr. Kehoe worked on developing the equipment and technique involved in combating the problems of fire at sea. Prior to naval duty, he spent five years with the New York Fire Department and assisted in the organizing and planning of the City's wartime defenses. He received an engineering degree from Manhattan College.

Mr. Kehoe conducts the course in fire protection engineering in the Graduate School of Engineering at New York University and is a member of the International Association of Fire Chiefs, National Safety Council, American Society of Safety Engineers, Veterans of Safety and the National Fire Protection Association.

District Advances Nine

The District Commissioners, Washington, D. C., promoted nine District firemen in August to fill vacancies caused by retirements. Heading the list of appointees recommended by Fire Chief Clement Murphy is Battalion Chief Percy A. Davis, named Deputy Chief Engineer of the Fire Department, to succeed Chief Frank G. Berry who retired September 1.

Captain George J. Kite is promoted to Battalion Chief, succeeding Battalion Chief W. C. Rees who also retired September 1. Named to fill the vacancy left by Chief Davis was Captain Alfred M. Grunwell. Promoted to Captains, replacing Kite and Grunwell were Lieutenants William F. Brown and John P. Damskey; from sergeants to lieutenants were William H. Yonce and George W. Quinn. Privates Albert O. Reeder and Robert F. Sutphin are advanced to sergeants.

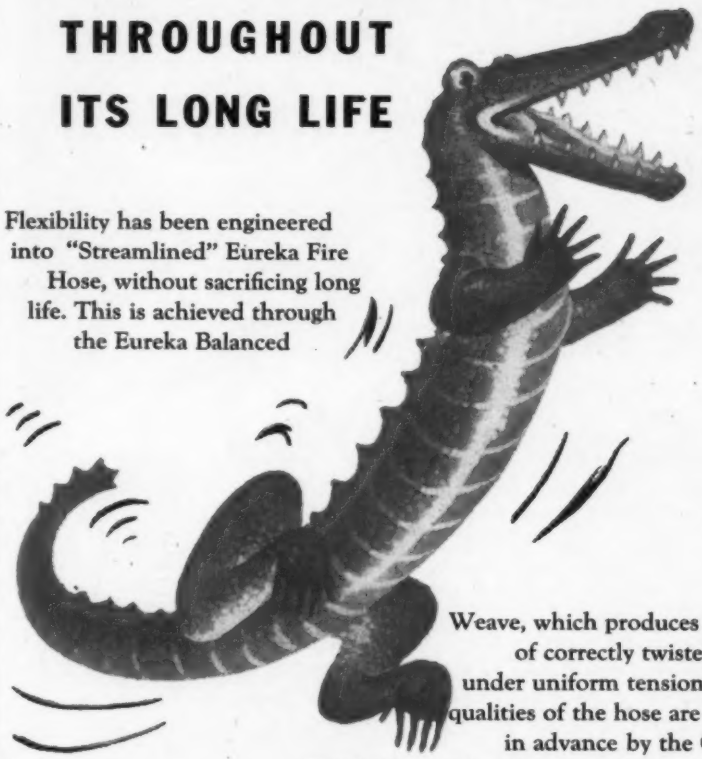
Chief Davis, thirty-six years in the department, will receive $6,894 annually. He has held his rank of Battalion Chief since January 1, 1945. Chief Grunwell has been with the department since 1925 and he is the author of the widely accredited D.C.F.D. Pump Manual. He will receive $6,242 in his new post. Chief Kite, a fireman for twenty-eight years, has received several commendations and was active in organizing the department rescue squads. He will also move up to $6,242 salary.

IRVING JOHNSON

Carroll Elected President of Sprinkler Association

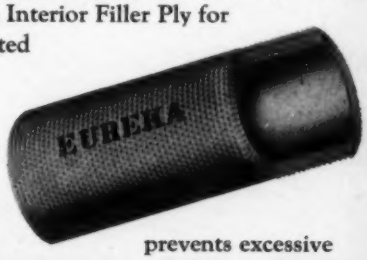
William J. Carroll, President of the Rockwood Sprinkler Company, was elected unanimously to head the National Automatic Sprinkler and Fire Control Association at its recent quarterly meeting in New York. He succeeds the late Russell Grinnell, Chair-

KEEPS ITS FLEXIBILITY THROUGHOUT ITS LONG LIFE



Flexibility has been engineered into "Streamlined" Eureka Fire Hose, without sacrificing long life. This is achieved through the Eureka Balanced Weave, which produces a fabric of correctly twisted cords under uniform tension. Aging qualities of the hose are proved in advance by the Oxygen Bomb Test, and mildew-proofing is provided by Eureka's Formula "X".

Among the other unique advantages of every Eureka "Streamlined" Hose are Smooth Interior Filler Ply for maximum nozzle pressure, and a patented method of Controlled Curing which prevents excessive writhing and warping, permits easier handling on the ground, on ladders, or when loading on the wagon.



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"For greater protection to life and property"

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BE SAFE
with a
Scott Air-Pak

● Smoke is a gas . . . made visible by solid particles. In fire fighting the important question is "What type of gas is present in the smoke . . . and does sufficient oxygen remain to support life?" The Scott Air-Pak, used on arrival, permits immediate inspection and action without subjecting personnel to breathing hazards. No matter what type of gas is present, or if oxygen is deficient, Scott Air-Pak completely supplies its wearer with pure cool breathing air . . . in any volume "demanded" by him.

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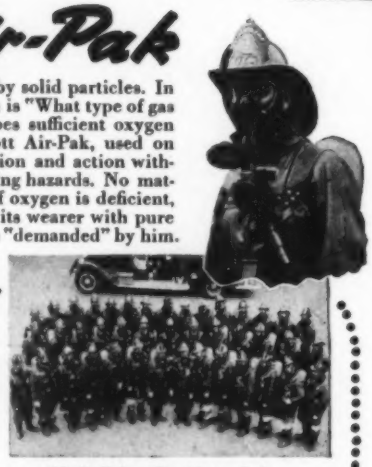

48 Air-Paks at Providence, R. I.

ONLY THE SCOTT AIR-PAK HAS ALL 6 FEATURES

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FOR SAFETY—FOR SERVICE

Wire or Write for a Free Demonstration

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"THERE CAN BE NO COMPROMISE WITH QUALITY WHEN A LIFE IS AT STAKE"

NIP BRUSH FIRES IN THE BUD WITH A HALE FZZ PORTABLE!

Fire fighters are "run ragged" this time of year with brush and field fires . . . and in hundreds of communities they have found a Hale FZZ Portable Pumping Unit mighty handy in putting such fires out quickly and easily. Picture shows a Hale Type FZZ Portable Pumping Unit fighting a brush fire from a moving truck. The unit can be carried on virtually any type of equipment, making it possible to fight fire while in motion, using a booster tank for source of water.

The FZZ will supply from draft, 60 U.S. Gallons per min. at 90 lbs. pump pressure; and 150 U.S. Gallons per min. at 30 lbs. It can supply two capable fire streams through 1½" lines.

Write for FZZ folder to:

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

man of the Board of Grinnell Corporation, Providence, R. I., who had been president of the Association for many years.

T. Seddon Duke, Secretary-Treasurer of the Star Sprinkler Corporation of Philadelphia, Penn., was elevated to the First Vice Presidency and James D. Fleming, President of the Grinnell Corporation, Providence, R. I., was elected Second Vice-President of the organization.

Miss Anna D. Bosch continues as Secretary-Treasurer and A. G. Woelfel, President of the H. G. Vogel Company, New York, as Assistant Treasurer.

The National Automatic Sprinkler and Fire Control Association is fully representative of the entire automatic sprinkler industry and through its business and technical committees is promoting closer cooperation with all those interested in fire prevention and fire protection, that the increasing fire loss may be minimized.

Buff Becomes Fire Commissioner

San Francisco's newest fire commissioner, Robert H. Schaefer, who was appointed to office April 9, 1948, by Mayor Elmer Robinson, is widely known in the Bay area as an ardent fire buff. He brings to his new duties a specialized knowledge of the city's fire service, which has grown out of his long and intimate association with the fire department.

The new commisssioner has been a member of the Phoenix Society, the local buff's organization for fifteen years, during which time he never missed a working fire to which he was able to respond.

Chief Braaten Dies

William A. Braaten, 61, Assistant Chief of the Tacoma Fire Department Tacoma, Wash., died July 25, 1948, of cerebral hemorrhage. He was widely known among Pacific Coast fire fighters through his 39 year membership in the department.

Chief Braaten was a member of the Tacoma 50-Year Club, the Order of Eastern Star, Clover Lodge of Masons, AOUW Lodge, Scottish Rites bodies and Afifi temple of Shrine, and Fire Fighters union, local 31. Surviving are his wife Pauline, and a sister and a brother.

Deputy Chief Meets Untimely Death

Deputy Fire Chief Lorenz A. Dolle, 63, of the Baltimore, Md., Fire Department, met an untimely death in one of those unusual kind of accidents that occur in the fire service.

Edward Lane, a 39-year-old colored "preacher," clad in pajamas, who went hysterical on the rooftop of a three-story East Baltimore dwelling on McElderry street, and preached an incoherent sermon, attracting a crowd of over 1,000 people, brought police and fire services after spectators feared he would lose his balance and fall from the roof.

Police and other efforts to induce Lane to descend failed. When officers tried to get onto the roof, he kicked at them. Firemen were then summoned and a ladder raised to the top of the building. The "preacher" then started

to descend, coming down face forward, still shouting and gesticulating.

Deputy Chief Dolle, fearing that the man would lose his balance, climbed up the ladder toward him. Lane warned the Chief not to approach him. Then, when Chief Dolle reached the level of his feet, Lane kicked the officer on the shoulder, knocking him to the street, 25 feet below.

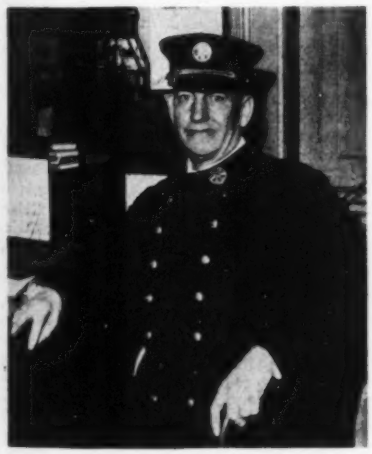
Fellow firemen rushed the Chief to the hospital where he died several hours later of a compound fracture of the skull. The colored man remained motionless on the ladder while firemen rushed to aid their superior. Meanwhile, policemen and firemen blocked Lane's escape back to the roof. Firemen then lowered the ladder with Lane still clinging to it, until police grabbed him and brought him down to the street.

Chief Dolle had been a member of the Baltimore Fire Department since 1909. He was assigned to the eastern section of the city. Lane, it was disclosed, had previously been confined in Crownsville State Hospital.

R. J. Zahm Dead

Robert J. Zahm, 71, retired Buffalo, N. Y., Deputy Fire Commissioner, died in that city, July 14, 1948, after a short illness. Deputy Commissioner Zahm, a veteran of 44 years' service, retired in 1943.

His rise in Buffalo fire ranks was consistent. Appointed a substitute fireman in April, 1899, he became a full-time



R. J. Zahm

fireman on August 1, 1900. Zahm rose to junior captain on June 1, 1909, to captain in 1915, and one year later was appointed a battalion chief. On March 28, 1933, the then Commissioner William R. Castimore appointed him deputy fire commissioner.

Born and educated in Buffalo, Zahm trained at the New York Fire Department School, while a captain in the Buffalo department. He returned to head the newly organized Buffalo Fire Department Drill School. Zahm directed the construction of a drill tower and himself conducted a school for officers.

During his many years in the Buffalo Department, Zahm was injured four times. In 1917 he was injured at the Elk St. Market fire, and one year later was severely injured during a fire at the National Aniline Chemical Company.

FIREFIGHTING TODAY IS *Different*

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Putting out the fire without regard to damage is as out-of-date as the old back-breaking hand pressure pump. Today, trained salvage crews equipped with Shuredry Green-Bak Covers stay ahead of the fire . . . protecting merchandise, furniture and fixtures from costly smoke and water damage.

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Many progressive associations use Green-Bak Shuredry Covers to teach modern methods of salvage to smaller departments in their state.

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GREEN-BAK SALVAGE COVERS

Approved Factory Mutual Laboratories and National Board of Fire Underwriters

They TOP Every TEST

Shuredry Green-Bak Salvage Covers top every known test for water penetration and seepage. Pressure-impregnated with the exclusive Fulton *dry* treatment, Shuredry covers will not stiffen in cold weather or become tacky in heat. They're always fast to spread . . . easy to fold and carry.

On your next order to your fire equipment dealer, specify SHUREDRY *Green-Bak Salvage Covers.*

FULTON BAG & COTTON MILLS

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While deputy fire commissioner, he received a head injury when his auto overturned following a collision with another vehicle. The accident occurred while he was en route to a fire.

In September, 1942, his right leg was amputated as a result of injuries he sustained at a fire in a downtown cafe.

Throughout his career he was known for his steel nerves. In 1934, an explosion in a grain and malt plant trapped 12 firemen, including one of Zahm's sons. With his characteristic coolness during an emergency, and despite his son's predicament, he directed rescue operations. Eleven of the 12 firemen, including his son, were rescued. The son, Paul G., is now a junior captain. Another son, Robert J. Zahm, Jr., is a Seventh Battalion Chief.

In 1929, a third son, Raymond C., also a fireman, was killed while fighting a multiple alarm fire in the International Railway Company's Cold Spring barns.

PAUL C. DITZEL

Fire Marshal F. A. Starkel Killed

Frank A. Starkel, 47, Deputy State Fire Marshal for Connecticut, was fatally injured in an explosion at the Edward Balf Construction Company's quarry at Newington, Conn., on July 19.

Lieut. Starkel, one of three men hurt in the blast, died at Hartford Hospital as the results of injuries he received when a piece of flying rock struck him. State Police Commissioner Edward J. Hickey disclosed that Lieut. Starkel, an investigator for the special hazards and explosives division of the State Police Department, was at the quarry observing a "routine blast." The violence of the explosion is believed to have been caused by an overcharge of explosives used in the blasting.

The Deputy Fire Marshal died in the Hartford Hospital several hours after the explosion. An autopsy performed disclosed that Lieut. Starkel died of internal bleeding. He had two ribs broken and a ruptured spleen.

Lieut. Starkel was born in East Hartford, July 4, 1903. He joined the State Police Department, May 20, 1925. He became motion picture theater inspector of special hazards and explosives.

He was promoted to Lieutenant, October 1, 1942, and named Deputy Fire Marshal. He also acted as liaison officer between the Fire Marshal's office and local fire chiefs and wardens and during World War II was Fire Coordinator for the State War Council.

State Police Lieutenant Adolph Pastore, a member of the Connecticut State Police Department since March 3, 1930, has been named to succeed the late Lieutenant Starkel by State Police Commissioner Edward J. Hickey. Lieutenant Pastore has been attached to the Special Service Division and attained the rank of Lieutenant June 17, 1947.

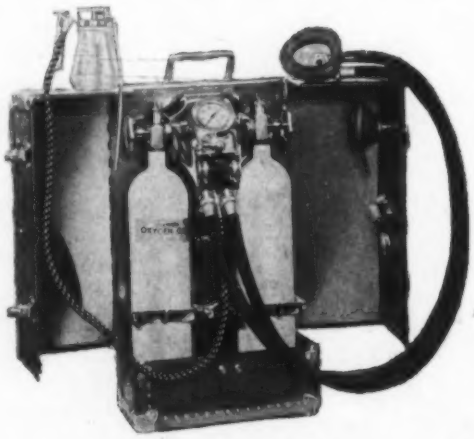
TOM MAGNER

STEPHENSON RESUSCITATOR

YOUR FIRST

THOUGHT IN RESUSCITATION

ASSISTOR
RESUSCITATOR
ASPIRATOR
INHALATOR



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Write today for literature or a demonstration.

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RED BANK, NEW JERSEY

Appointments and Promotions

NEW CASTLE, PA.—New appointments effective July 1, 1948, in the New Castle Fire Department are: Chief, Herman F. Steinbrink (succeeding the late Chief James Thomas); 1st Asst. Chief, Norman A. McFarland, and 2nd Asst. Chief, William E. Bowen.

RAYMOND G. CLARK

ANN ARBOR, MICH.—Promotion of three members of the Ann Arbor Fire Department, effective July 1, 1948, was announced by Fire Chief Benjamin Zahm: From captain to 1st asst. chief, vacant since the retirement of Herman Kruse: Ernest W. Heller, a member of the department since 1924. To captain. Edward F. Zeeb; to lieutenant, Paul H. Wenk.

LOWELL, MASS.—Capts. George W. Nickerson and James F. Grantz have been appointed assistant chiefs of the Lowell, Mass. Fire Department, by Fire Chief Charles F. Stackpole, it was announced early in August. The two officers topped the current civil service list.

PARADISE, CAL.—Elmer Kerr is Chief of Paradise, Butte County, Cal., Fire Department.

VICTOR BARTLEY

CHESTER, CAL.—Gene M. Martime is Assistant Chief, Chester Fire Department.

VICTOR BARTLEY

Obituaries

LEWISTON, ME.—High honors were paid the late Fire Captain William Labonte, 47, for 25 years a member of the Lewiston Fire Department, who died in May. He joined the department in 1901, became call man in 1923; was appointed permanent fireman in 1925, and advanced to lieutenant in 1934, and captain in 1940. In the eulogy by Fire Chief Zephirin F. Drouin of the Lewiston department, "Captain Labonte was an excellent officer, a true fireman to the last minute of his life."

Obituaries

PLYMOUTH, MASS.—Henry W. Walton, former fire commissioner of Plymouth, Mass., and widely known in New England fire circles, died in August. The Fire Chiefs' Club of Massachusetts participated in the funeral services, held on August 16th in Plymouth.

Retirements

SHAWNEE, OKLA.—W. W. Wicker, for over twenty-seven years a member of the Shawnee Fire Department, during twenty-one years of which he served as chief, has retired on pension. His successor is Sam Riley.

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of August, 1948.

Month Ending August 31, 1948

Lillooet, B. C.—Phair's Store, four genl. stores, two restaurants, jewelry store, real estate office and Canadian Legion Clubrooms, destroyed.
Los Angeles, Cal.—Plts. of Southern Calif. Paper Stock Co., Snyder Engineering Co., and Columbia Varnish Co., destroyed.
Denver, Colo.—Two city blocks damaged. Two bldgs. of Ace Box Co. one of losses.
Augusta, Me.—Three cattle barns at Augusta State Hospital, damaged.
Butler, Pa.—Bona Vista night club destroyed.
Yeadon, Pa.—Don's Grille, restaurant, damaged.
Philadelphia, Pa.—Russian-American Citizens Club destroyed.
Colton, Cal.—Inland Fruit Distributors packing plt. destroyed.
Los Angeles, Cal.—Eight bldgs. at General Petroleum Corp.'s Lebec refinery destroyed.
Trenton, N. J.—Walter H. Schultz auto agency damaged.
Youngstown, Ohio—Bldg. occupied by Western Auto Stores and four apts. damaged.
Prineville, Ore.—Prineville Lumber Co. destroyed. Spark from burner.
Oakville, Ont.—James Kendall Leather Co. destroyed.
North Stonington, Conn.—Processing plt. of Lantern Hill Silica Co. destroyed.
New Hampton, Ia.—Bldg. occupied by Gamble store and offices of county farm bureau; John Kelley Insurance Agency and William Kennedy law offices, destroyed. Adj. Sarah's dress shop and Main diner cafe, damaged.
West Bend, Ia.—Davenport elevator destroyed. Defective wiring.
Fulton, Ky.—Baldridge Variety Store destroyed. Spark in electric motor.
Kalispell, Mont.—Six leading business blocks, destroyed.
Washington, N. C.—M. G. Walters Lumber Co. plt. destroyed.
Springfield, Ohio—Citizen's Dairy Co. damaged.
Bend, Ore.—West Town Lumber Co. destroyed.
Tyler, Tex.—Tyler Trojans Baseball Park damaged.
Victoria, B. C.—Wester Forest Products Mill, Honeymoon Bay, destroyed.
Victoria, B. C.—Gibson Bros. Mill, Tahsis, destroyed. Spark from acetylene torch.
Sarnia, Ont.—Bldg. occupied by Savoy Restaurant and apts., destroyed. Adj. stores of Modern Ladies Wear and Storeys Cigar Store, damaged.
Trenton, Ont.—Ice storage house of P. & D. Ice Co. destroyed.
New Orleans, La.—Klein Motors Co. destroyed.
Malaga, N. J.—Peet Bros. gladiola farm and apt. damaged. Exploding kerosene stove.
Spruce Pine, N. C.—Topliff Hotel damaged.
Philadelphia, Pa.—Model Box Co. damaged.
Colebrook, N. H.—Millburn Sporting Goods Co.; bldg. of Herbert Gifford; two bldgs. occupied by Hawes Restaurant and Hill's Dept. Store; Colebrook Fruit Co.; Legion Restaurant and bldg. occupied by First National Stores, all in Paddy Acre Section, destroyed.
New Westminster, B. C.—Seven dry kilns of McNair Shingle Mills, Ltd., Pleasantside, six miles north, destroyed.
Sylvester, Ga.—Whse. of Thomas I. Spendley Lumber Co. damaged. Lightning.
Paducah, Ky.—Paducah Box & Basket Co. plt. damaged.

Ask for Briggs & Stratton Gasoline Engines on the equipment You buy

More and more Briggs & Stratton Engines are now available on all types of appliances and equipment than ever before.

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Milwaukee 1, Wis., U. S. A.

4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES
Preferred Power
FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

St. Louis, Mo.—Genl. whse. of St. Louis Shipbuilding & Steel Co.'s plt. damaged.
Jacksonville, Tex.—Pebody crate factory at Turner, four miles from this city, damaged. Fire started in boiler room.
Windsor, Vt.—Two barns of Kenneth Hunt destroyed.
Peterborough, Ont.—S. S. Kresge store damaged.
Canora, Sask.—Cooperative Creamery damaged.
Charlestown, Mass.—Store shed in Boston & Maine freight yards damaged.
Beres, Ohio—Two factory bldgs. destroyed.
Miami, Okla.—Millner Berkey Dept. store damaged. Four other bldgs. also damaged.
Knoxville, Tenn.—Jewelry store of Max Friedman damaged.
Red Oak, Ia.—Shields Mfg. Plt. destroyed.
Grand Rapids, Mich.—Beatrice Foods Corp. whse. damaged.
Readington Township, N. J.—Five airplane hangars at Solber-Hunterdon Airport and whse. of War Assets Administration, destroyed. Loss included automobile and private plane.
Portland, Ore.—Willbridge Terminal Shell Oil Co. destroyed. Explosion.
Utica, N. Y.—Utica Municipal Airport damaged.
Beaumont, Tex.—Beaumont Municipal Airport hangers and 19 airplanes damaged. Fire started by welding arc end.
Montreal, Que.—Fire, believed caused by exploding tank cars, swept through Canadian National Railway's Bonaventure freight yards.
Blissfield, Mich.—F. D. Bailey drug store damaged. Also George Kerbawy store and Blissfield Advance damaged.
Malinta, Ohio—Five bldgs. on farm of Henry Pohlman destroyed. Spontaneous ignition.
Norwich, Conn.—Business bldg. damaged.
Wallingford, Conn.—Bus terminal of Rose Bus Service, Inc., damaged.
Buffalo, N. Y.—Rex Grain & Milling Co., Inc., edge of grain elevator district of waterfront, damaged.
Buffalo, N. Y.—Bldg., east side, occupied by beverage concern, auto service shop and furniture business, damaged.
Shenandoah, Pa.—Breaker of the William Penn Salvage Co. destroyed.
Wapato, Wash.—Big Y Packing Co. destroyed. Potlatch Lumber Co. destroyed.
Dallas, Tex.—Jack Swain's brick apt. hotel damaged. Defective air conditioning unit.
Lexington, Ky.—Perry Lumber Co. plt. damaged.
Watertown, Mass.—Brunsine Co. damaged. Roofing tar kettle ignited chemicals.
Philadelphia, Pa.—Barn on Frog Hollow Dairy Farm, Germantown Pike, Plymouth Township, destroyed.
Milwaukee, Wis.—Eight box cars, sections of four multiple tracked trestles and light tower of Milwaukee road and abandoned barge at Menomimee River damaged. Oil slick on river.
Roseville, Cal.—Roseville Livestock Auction Yard outside city limits, destroyed. Spontaneous ignition.
St. Charles, Mo.—Machens Motor Co. damaged.
Wrightsville, Beach, N. C.—Atlantic Inn, Judy apts., summer home of D. H. Thomas, summer home of Frank Herbst and two cottages of Pae Estate, destroyed. Hot water heater.
Cutler City Ore.—Cutler City Lumber Co. destroyed. Spontaneous ignition.
Wichita Falls, Tex.—Wichita planing mill damaged.
Artas, S. D.—Two grain elevators owned by Artas Equity, destroyed.
Anaheim, Cal.—Mutual Citrus Producer Pectin Plt. damaged. Sparks from electric motor.
Norwalk, Conn.—Main bldg. of Hicks & Otis, cellulose and plastic furniture covering mfrs., destroyed. Explosion.
Kodiak, Alaska—Main bldgs. and 14,000 cases of salmon at the Kodiak Fisheries 40 miles northwest, destroyed.
Wheatley, Ark.—Plt. of Wheatley Spoke Co. destroyed.
Minneapolis, Minn.—Bldg. occupied by National Jewelers Retail store, Askins Clothing Store, damaged.
Ontario, Ore.—Hunter Cleaning & Dyeing Co. destroyed. Back fire oil furnace.
Memphis, Tenn.—Tennessee Fabricating Co., destroyed.
Gladewater, Tex.—Hall Lumber Co., destroyed.
Kemmerer, Wyo.—Cottage owned and operated by Catherine Peterson, damaged.
Baltimore, Md.—McShane Bell Foundry Co., Inc. destroyed. Adj. bldg. occupied by Charles E. Hires Co., and Hampden Transfer & Storage Co, damaged.
Baltimore, Md.—Dwelling of Edward Aguinaga, damaged.
Battle Creek, Mich.—Mixing and processing bldg. of A. K. Zinn & Co., damaged.
Lisbon, N. H.—Landmark barn, known as "The Playhouse in the Hayloft" and an ice house, Sugar Hill section, destroyed.
Tiptonville, Tenn.—W. C. Haynes Lumber Co., destroyed.
Burlington, Vt.—Bldgs. at Ethan Allen farms, South Burlington, destroyed.
Glendale, Cal.—Alexander Theatre, damaged.
St. Louis, Mo.—Whse. of Frigidaire Sales Corp., damaged.
Richardton, N. D.—Farmers Union elevator damaged.
Clark, N. J.—Hyatt Bearings Division of the General Motors Corp. damaged.
Timber Lake, S. D.—Odegaard Elevator Co., damaged.
Perryton, Tex.—Perryton Hotel, damaged.
San Mateo, Cal.—Peninsula Van & Storage Whse. bldg. and furniture contents damaged.
Red Lake, Ont.—Bldgs. of Howey Gold Mines destroyed.
Phoenix, Ariz.—Lepia-Pratt Produce Distributors, Inc., damaged.
Natick, Mass.—Farm bldgs. of Cyrus Jenness, South Natick Section, damaged. Tractor explosion.
Shelbourne Falls, Mass.—Mayhew Steel Products, Inc., plt., damaged.
Tyler, Tex.—John B. Martin Lumber Co. beyond city limits, destroyed.
Turlock, Cal.—Two blocks of packing sheds along Southern Pacific right of way and 19 rail freight cars, standing on sidings, destroyed.
Georgetown, Tex.—Troy Laundry & Dry Cleaning Co., destroyed.
Portland, Ore.—Elderberry Inn destroyed.

"SAFETY-FILLS" end spilled-gas fires in service stations

Underwriters' approved nozzle with automatic shut-off eliminates hazardous overflow

In service stations, garages, airports and fleet servicing centers—in outdoor or indoor installations—spilled gas is a serious fire hazard.

Buckeye Safety-Fill Nozzles eliminate dangerous gasoline overflow.

Here's how: when gasoline covers the end of the spout, the formation of a vacuum causes the main valve to close automatically—even though the nozzle is manually held open—and the flow of gasoline stops immediately.

With Buckeye Safety-Fills, there is no guessing when the tank is full, even at night or under noisy conditions. Servicing is safely accomplished at maximum speed.

Buckeye

Manufacturers of a complete line of Fire Fighting Equipment

BUCKEYE IRON & BRASS WORKS, Dept. E
P. O. Box 883, Dayton 1, Ohio

Please send complete details on Buckeye Safety-Fills.

NAME_____

ADDRESS_____

CITY_____ STATE_____

Officer Rank Open to Fire Fighters

Civilians, possessing either professional or technical qualifications which are critically essential and immediately adaptable to the needs of the Army, may get direct appointments in the Officers' Reserve Corps according to a new policy outlined on August 13 by the Department of the Army.

Commissioning of specialists is intended to provide a continuing source of officers experienced in fields in which it is not feasible or economical for the

Army to give training. The establishment of standards under the new policy now opens the way for those who previously applied for direct commission in specialist fields to resubmit their applications.

Such specialties as Fire Prevention and Extinguishment, various branches of engineering, motion picture production, printing and submarine diving, are included in a list of seventy-five varied fields.

Individuals, without prior military service, will be required to meet, within a reasonable length of time, the minimum military training requirements established to maintain a commission in the grade and section in which appointed, and in their mobilization assignment.

In addition to specific schooling or experience in any of the above fields, applicants for direct appointments must be at least twenty-one years old, citizens of the United States by birth or naturalization, must have an Army intelligence score of 110 or higher, physically qualified, with some waivers, and at least a bachelor's degree. Some special fields require only a high school education or equivalent preparatory school education.

Age maximums and educational or experience minimums are: second lieutenants, 30 years with 4 years college or experience; first lieutenants, 33 years with 7 years college or experience; captains, 37 years with at least 11 years college or experience; majors, 45 years, with at least 16 years college or experience; lieutenant colonels, 51 years, with at least 21 years college or experience; and colonels, 55 years, with at least 26 years college or experience.

Convention Dates

Sept. 22—GOVERNOR'S FIRE SAFETY CONFERENCE. War Memorial Building, Trenton, N. J. Sponsored by New Jersey State Safety Council. Chairman, Leon Watson.

Sept. 23-25—INDIANA FIRE CHIEFS ASSOCIATION. Annual meeting, Richmond, Ind. Secretary, Robert F. Hamm, Indiana Rating Bureau, 320 North Meridian Street, Indianapolis 9, Ind.

Sept. 24-25—FIRE CHIEFS' DRILL SCHOOL. Annual meeting, Inlet, N. Y. Registrar, Dewey Rudd, President, Inlet Fire Department, Inlet, N. Y.

Oct. 4-7—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Buffalo, N. Y. Secretary, Irvin Shulsinger, 11 West 42nd Street, New York 18, N. Y.

Oct. 14-16—ILLINOIS FIREMEN'S ASSOCIATION. Annual meeting, Rockford, Ill. Secretary, Chief Roy W. Alsip, Fire Headquarters, Champaign, Ill.

Oct. 19-22—EGYPTIAN FIRE COLLEGE. Annual meeting, Southrn Illinois University, Carbondale, Ill., secretary, V. L. Stocks, Carterville, Ill.

Oct. 25-28—KANSAS STATE FIREMEN'S ASSOCIATION. Annual meeting, Wichita, Kans. President, Chief C. G. Lipps, Fire Headquarters, Wellington, Kans.

Oct. 25-27—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Lincoln, Neb. Secretary-Treasurer, Russell D. Salak, P. O. Box 312, Schuyler, Neb.

Oct. 28-29—NORTHEASTERN FIRE PROTECTION-PREVENTION CONFERENCE. Annual meeting, Hartford, Conn. Address correspondence to Hartford Fire Department, 275 Pearl Street, Hartford, Conn.

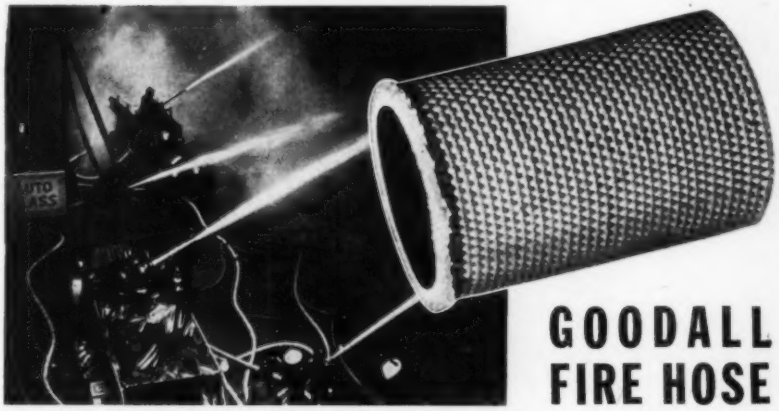
Oct. 31—Nov. 3—PACIFIC COAST INTER-MOUNTAIN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Sacramento, Cal. Secretary, Jay W. Stevens, Merchants Exchange Building, San Francisco, Cal.

Nov. 9—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Quarterly meeting, Cairo, Ill. Secretary, V. L. Stocks, Carterville, Ill.

Nov. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHEFS. Annual meeting, Miami, Fla. Secretary-Treasurer, Chief Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

All You Ask is GOOD Hose . . . and FULL Pressure!

Given those two essential fire-fighting ingredients, *you'll do the rest* on the toughest assignments, even at the risk of life itself. Fully aware of the responsibility involved, Goodall builds only *one quality* of fire hose . . . the *best* that men and machines can produce.



GOODALL FIRE HOSE

Cotton Rubber Lined — Single or Double Jacket

"Nothing but the best" is the watchword for every element in the building of Goodall Fire Hose . . . materials, workmanship, final inspection and testing. Jacket of selected long fibre cotton duck withstands extremely hard wear and rough treatment, offering effective resistance to snagging, puncturing and bursting. The rubber lining is tough, durable, expertly cured. Flexibility and relatively light weight assure easier handling and coiling. *Contact our nearest branch for further details and prices.*

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THE GOODALL-WHITEHEAD COMPANIES

MILLS and EXPORT DIVISION, TRENTON, N. J.—ESTABLISHED 1870

Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles San Francisco • Seattle • Salt Lake City • Houston • Distributors in Other Principal Cities

HOWE Fire Truck Equipment to Meet Every Service

Established 1872

HOWE FIRE APPARATUS COMPANY, 1402 West 22nd Street, Anderson, Indiana

THE NEW DELUXE
WHEAT
Rechargeable Spotlight
NOW AVAILABLE FROM STOCK

MODEL 253

ALL PARTS HIGH LUSTRE, CHROME FINISH—EQUIPPED WITH PROTECTIVE LENS GUARD AND ALL-LEATHER CARRYING STRAP

FEATURES

- Less expensive operation than dry cells.
- Free use of hands. Light carries conveniently on shoulder strap.
- Positive "Non-spill" construction.
- Light can be focused and directed as desired.
- Weighs only 95 ozs. complete.
- Simple to charge and water. No need to take lamp apart.
- Price and operating cost make Wheat adaptable to any budget.

2,500 FOOT BEAM
25,000 CANDLE POWER
1,000 HOURS OPERATION

KOEHLER MFG. CO.
MARLBORO, MASSACHUSETTS

News of the Manufacturers

(*Continued from page 595*)

tween life and death. Adequate resuscitation equipment for the fire department is headlined as "community life insurance."

The displays are built so that they can be used effectively in all types of store windows, hotel and theater lobbies, and similar locations.

The display panels are available from the E & J Manufacturing Co., Glendale 1, California, or any E & J dealer throughout the country.

General Detroit Corp. Makes Changes

The General Detroit Corpn., Detroit, Mich., has announced the following changes:

E. A. Warren, formerly Vice President in Charge of Sales, has become Executive Vice President, and the policies of the Fire Extinguisher, Fire Apparatus, Fire Hose, and Industrial Divisions have been coordinated under his jurisdiction. A. B. Seigfreid, formerly Sales Manager of the Fire Truck Division, has assumed the position of Vice President in Charge of Manufacturing. Preston W. Wolf, formerly Assistant to the Vice President, has succeeded to the post of Assistant General Sales Manager.

Other appointments include: M. S. Shoppert to the position of Assistant Sales Manager for Fire Extinguishers; H. A. Thompson, Assistant Sales Manager for Apparatus; R. O. Beuschline, Assistant Sales Manager for Fire Hose and Industrial; Roy H. Morrison, Central Divisional Manager; and Gail M. Rutledge, Midwestern Divisional Manager. All of the appointees are veteran employees of the corporation.

Fire Truck for Oil Industry

One man operation of a foam-producing, fire-fighting, double-duty truck for protection of oil risks is claimed by National Foam System, Inc., Philadelphia. The first of these new trucks has just been delivered by National Foam to the Mene Grande Oil Company, C. A. This company is a subsidiary of the Venezuela Gulf Oil Company which, in turn, is a subsidiary of the Gulf Oil Corporation.

Enough men to operate a portable dry powder foam-producing system may not always be available. To fight a fire in an 80,000 bbl. tank, using two large capacity duplex generators, would probably require eight men. The company further estimates that to extinguish such a fire in a reasonable time would require 11,500 lbs. of dry powder, which would have to be transported to the threatened area.

The new truck, faced with extinguishing a fire in an 80,000 bbl. tank, as above, will produce that quantity of foam from the foam powder it carries.

Pyrene Advances S. C. Williams

S. Carlton Williams, Jr., has been promoted to eastern district manager for the Pyrene Manufacturing Company, Newark, N. J., makers of extinguishers and other fire-fighting equipment.

Williams, formerly a special assistant to the president, succeeds Ray Poole, who has been transferred to Chicago as sales manager of that district. Williams joined Pyrene in 1939, started in the Louisville (Ky.) district.

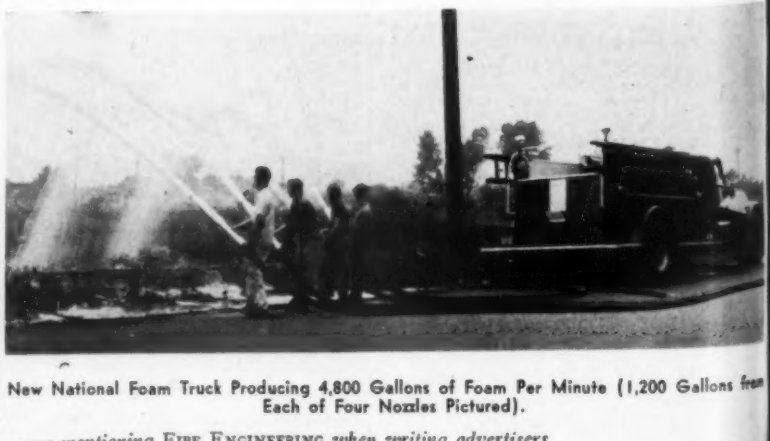
Additional Exhibitors at I. A. F. C. Conference

Since the publication of the list of exhibitors at the Miami Conference of the International Association of Fire Chiefs, in the August issue of FIRE ENGINEERING, the following have signed up: American-LaFrance-Foamite Corporation, Elmira, N. Y.; Mack International Motor Truck Corp., Long Island City, N. Y.; The Seagrave Corp., Columbus, Ohio; Eureka Fire Hose Div., United States Rubber Company, New York, N. Y.; Owens-Corning Fiberglas Corp., Toledo, Ohio; Carbide & Carbon Chemicals Corp., New York, N. Y.; Four-Wheel Drive Auto Co., Clintonville, Wis.; Emergency Aids Co., Chicago, Ill.; Wooster Brass Co., Wooster, Ohio; Philco Corporation, Trenton, N. J.; and Hale Fire Pump Co., Conshohocken, Pa.

Chief James T. Keegan, Salvage Patrols, Newark, N. J., is Chairman of Exhibits.

Permain Basin Firemen's Association Meets

Kermit, Texas, was the scene of the quarterly meeting of the Permain Basin Firemen's Association, on May 1, 1948. The organization includes the towns and cities in the Great Permain Basin oil field of West Texas and Southeastern New Mexico and includes Alpine, Big Springs, Brownfield, Crane, Denver City, Kermit, Monohans, Ft. Stockton,



New National Foam Truck Producing 4,800 Gallons of Foam Per Minute (1,200 Gallons from Each of Four Nozzles Pictured).

McCamy, Midland and Wink, all in Texas; and Jal, Eunice and Hobbs, in New Mexico. About 150 firemen were in attendance.

The Kermit Volunteer Fire Department, Fire Chief Fred W. Pearson, was host to the visitors. Chief Clyde White, of Wink, Texas, presided over the business sessions. The principal speakers were Dan E. Lake, President, Southeastern Association of Fire Chiefs, and J. R. Dobson, Field Instructor, Texas A & M College. Pumper races were held in the afternoon, Ft. Stockton, Texas, firemen again winning first place. Monohans, Texas, was second.

Reno Explosion

(*Continued from page* 595)

ing and the roof (it will be noted that the glass fronts of most of the stores had been taken out prior to the blast). Apparently these gases simply reached a combustible concentration and exploded, the chief indicated. Extent of pressure in the upper reaches of the building was borne out by the subsequent effect on the upper story of the nearby Alturus hotel. Thus, earlier theories that either dynamite or other combustibles stored in the area created the explosion are largely discounted.

Exactly what comprised the exploding gases has not been determined, according to Chief Evans.

Reno's second big fire is as many days (August 16) sent four men to hospitals as what officials described as "only good fortune" prevented butane tanks from exploding with possibly disastrous results.

This fire was at the Ransome Company of Nevada plant on West Fourth street and resulted in the destruction of the firm's bottling platform and shed, the nearby office building and a pickup truck parked along the platform. The cause of the blaze was not determined.

Four units of the Fire Department responded to the single alarm under command of Fire Chief Karl Evans, and operated three to four streams of water on the blazing butane platform and exposed tanks. The water was sprayed on the large storage tanks while the fire was being fought after valves on them had been subjected to dangerous pressures from the heat radiated by the fire.

Injured were three Ransome employes and one Reno fireman, Leslie Shipman. The latter collapsed from exhaustion, believed to have been partially induced by his having fought the earlier Lake street fire for six hours.

Possibly having in mind the outcome of the Lake street explosion, spectators at the Ransome morning blaze were few and most of them remained at a healthy distance.

Flames from the blazing bottling platform caused two overheated 50-gallon butane bottles to explode shortly after fire fighters arrived, signalling a possible later and more serious explosion of remaining fuel storage, which would have leveled most of the surrounding area. However, escape valves on the bottles operated properly and although gas in some containers was ignited no further blasts resulted.

Explosions of the two bottles sent one of them hurtling west approximately 300 feet, clearing two 10,000-gallon and one 3,000-gallon storage tanks about 150 feet away. The property damage was not disclosed.

QUAKER MODERN MUNICIPAL FIRE HOSE

Provides 1/3 more protection

How can a fire hose fold thin and "flat as a pancake," yet be tough and sturdy? Quaker has the answer—EASY-FOLD construction!

Quaker Modern Municipal Fire Hose folds flatly, handles easily, yet it's a brute for strength. Compact packing allows 1/3 more footage into truck beds, assuring extra protection and fighting power.

Specially-designed looms carefully weave the sturdy cotton yarn jackets encasing the tough rubber tube for high resistance to bursting, abrasion, severe service. When fire strikes, it pays to have dependable Quaker Fire Hose on the job. Take a tip from countless cities, communities, and industrial plants that rely on Quaker for extra safety, and economy. Better check your supply and order some today. Fires won't wait!

"If there's a way to get it done . . . Quaker will do it"

QUAKER RUBBER CORPORATION

PHILADELPHIA 24, PA. • NEW YORK 7 • CLEVELAND 15 • CHICAGO 16 • HOUSTON

QUAKER PACIFIC RUBBER CO. • SAN FRANCISCO 3 • LOS ANGELES 21 • SEATTLE 4

All Aboard for Fun! Fire Chief's Post Convention Tour

to exotic HAVANA, CUBA!

The S. S. FLORIDA "Fire Chief Special"

sails from Miami November 12th, right after the Convention! Two exciting days in Havana, with special entertainment by Cuban Fire Department, sightseeing, hotel rooms, night tour, all arranged. Also dancing, delicious meals, berth aboard ship in each direction. Only $68.50 per person. Don't miss it! Send reservations NOW to Tour Mgr., George B. Monroe & Co., 327 N. E. 1st Ave., Miami 32, Fla.

THE PENINSULAR & OCCIDENTAL STEAMSHIP COMPANY

Fire Protection News

With this issue, FIRE ENGINEERING resumes publication of news items having to do with the fire service and the business of fire protection, a feature discontinued early in World War II, due to publishing limitations. These brief items are clipped and culled from the nation's press and from readers' correspondence.

BOSTON, MASS.—A $25,000 fund to further fire prevention in Boston has been established by the Boston Board of Fire Underwriters. A committee including State and City fire protection officials will administer the year-round fire prevention activity, financed by Boston general insurance agents.

According to Mr. Franklin J. Connors of the Boston Board, the city's fire loss situation is more serious than is generally realized and its 1947 record was about the poorest of the country's twenty largest cities.

* * *

NAPA, CALIF.—David Hotelling, aged 10, always dreamed of owning his own real, regulation-sized fire engine. Last spring he heard that the Napa City Council was selling a model 1926 piece of apparatus to make room in the new firehouse for modern equipment.

David counted his savings, earned by selling Christmas cards and doing odd jobs—and made a $25 bid.

It was the only one the Council received and David was awarded the fire engine. Fire Chief Vernon Van Sant added the frosting. He threw in a regulation fire hat.

* * *

BANCROFT, IOWA.—This item is from the Bancroft (Ia.) Register: "Recently equipment has been taken from the Bancroft Community Fire truck for use on other projects. This equipment has now been returned to the fire truck and must not be taken by any one at any time for any use. All of the hose and other fire equipment are the property of the taxpayers of Greenwood and Ramsey townships and the Town of Bancroft jointly and can be used ONLY for fire fighting. This notice ordered by the Bancroft Community Fire Truck committee: A. A. Fangman, Greenwood; Leo N. Goche, Ramsey; H. V. Clark, town of Bancroft."

* * *

DENVER, COLO.—Construction of a $125,000 fire alarm control station in Denver is expected to get under way in September. The building will be two stories with the first floor partially under ground. There will be no front door; personnel will enter through a service entrance in the rear. The central portion of the building will contain the control board and equipment; stand-by generators, battery rooms, a kitchen and small dormitory, boiler room and lavatories will be located in the two wings.

* * *

CRESCO, IOWA—Rural voters of seven townships surrounding Cresco, Iowa, made tentative plans in June for the sale of bonds amounting to $15,000 for fire protection facilities. Funds will be raised by levy amounting to one-quarter of a mill on the total valuation of the seven townships: Albion, Howard Center, Vernon Springs, New Oregon and Paris in Howard County; Fremont and Orleans in Winneshiek County.

* * *

WARRENTON, VA.—A plan to divide the Warrenton Volunteer Fire Department into two companies, with a new fire house for the new unit is contemplated. The present headquarters on Main Street is overcrowded. New station would house a modern truck due in a short time and one of present older units of the department. If and when plan is adopted, present members will be divided into two groups, with a single set of officers.

* * *

PHILADELPHIA, PA.—Mayor Bernard Samuel, members of the City Council and the Department of Public Safety were called upon to provide new fire equipment for West and Southwest Philadelphia, after an inspection of fire station at 50th St. and Baltimore Ave., by a businessmen's group.

It is claimed only one ladder truck is available for immediate service in the section north of Market St. and west of the Schuylkill and as far south as International Airport—and that, it is said, is a 35-year-old relic.

* * *

ALBANY, N. Y.—Fire Chief Michael Fleming of the Albany, N. Y., Fire Department, announced the promotion of three veteran fire captains to posts of battalion chief. Those receiving advancement are Capt. Richard F. Fleming, Chief Fleming's nephew, regularly in charge of the Rescue Squad; Capt. Thomas F. McGraw, of Engine 9, and Capt. Bernard G. Gannon, of Ladder 4.

75 YEARS OF SERVICE

Back in 1873 this Company started manufacturing pumps — we have never stopped. Today our Barton-American fire pumps are operating throughout the entire country — yes, even the world. These 75 years of continued service and experience are your guarantee of quality.

The above fire truck is equipped with our Barton-American, Gear Driven, Front Mounted Centrifugal Fire Pump, that can be mounted on any commercial chassis. Available in sizes to 600 GPM at conventional pressures and also for high pressure fog gun service—giving you dual protection—*fog and Underwriters Approved streams.*

A REAL MARK OF DISTINCTION

75th ANNIVERSARY

AMERICAN-MARSH PUMPS, INC.

BATTLE CREEK. MICHIGAN. U. S. A.

IN CANADA: C. E. Hickey & Sons Limited, Hamilton, Ontario

Successful Kentucky School

The Kentucky Fire School, held at the University of Kentucky, Lexington, June 8-10, 1948, sponsored by the University's Department of University Extension, was acclaimed an outstanding success. There were 277 registered enrollees, 205 of whom received certificates of attendance.

Speakers and lecturers included: Harry (Smoky) Rogers, master of ceremonies; Mayor Tom G. Mooney, Lexington; Hon. H. L. Donovan, president, U. of K.; Norman H. Davis, Jr., Underwriters Laboratories, Chicago; Capt. V. A. Beam, teacher-coordinator; Chief H. L. Foster, Louisville Fire Department; Col. John Krusenkleus, Chief, Louisville Fire Department; Robert F. Hamm, Indiana Rating Bureau, Indianapolis; Dr. L. R. Dawson, U. of K.; W. Bush Walden, University of Missouri; W. M. Dening, Office of State Fire Marshal, Kentucky; Chief Walter Salyers, Covington, Ky., Fire Department; H. T. Busby, National Board of Fire Underwriters; G. H. Parker, Kentucky Inspection Bureau; Emmett T. Cox, Western Actuarial Bureau, Chicago; John L. Thompson, Kentucky Inspection Bureau; Hon. Allen Bruckner, Mayor, Winchester, Ky.; Hon. C. P. Thurman, Division of Insurance; George H. Anderson, Springfield, Ill.; Capt. Robert Burdon, Louisville Fire Department; John Townsend, National Board of Fire Underwriters, Chicago; Charles Ransdell, Kentucky Inspection Bureau; Capt. J. E. Berryman, Lexington; Assistant Chief Stanley Ward, Hopkinsville, Ky.; Marshal Hubert Finnegan, Covington Fire Department.

V. A. BEAM, Coordinator
Firemen's Training

Fire and Safety Courses at New York University

The Graduate Division of the College of Engineering, New York University, is offering graduate courses in fire protection engineering and safety engineering primarily designed in order that engineering graduates will be fire and safety conscious in the practice of engineering.

Edward J. Kehoe, Fire Prevention and Safety Engineer, U. S. Atomic Energy Commission, conducts the fire course on Friday nights. The safety course on Thursday nights is given by Henry A. Cozzens, Jr., Industrial Consultant.

The courses are ordinarily open to college graduates. Registration will take place Sept. 20-22, inclusive, 6:30-8:30, South Hall, University Heights, Bronx, N. Y. Further information may be obtained from the Assistant Dean, College of Engineering, New York University, New York 53, N. Y.

Forest Fire Radio for N. J.

The State of New Jersey awarded Motorola, Inc., of Chicago, a contract to supply the State of New Jersey Department of Conservation Forest Fire Service with a complete state-wide 2-way FM radio communications system consisting of 30 base stations and 65 mobile units.

Equipment will operate in the 160 megacycle band with automatic repeater equipment for flexibility and complete automatic control.

SPECIFY

POWHATAN

The Improved
"SENSIBLE LUG" COUPLINGS

DON'T COMPROMISE
ON QUALITY – DEPENDABILITY

POWHATAN "Sensible Lug" Couplings are precision manufactured with quality material. Our 56 years of engineering experience is your assurance that they will stand up under any conditions.

Experienced fire-fighters appreciate the "Sensible Lug" with the curvature which enables hose to glide along smoothly without becoming snagged in obstructions.

Specify Powhatan "Sensible Lug" Couplings on your next order.

POWHATAN BRASS and IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town West Virginia
Established 1892

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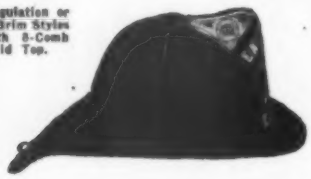

LEATHER HELMETS

Made of tough top-grain leather specially processed to give strength and heat resistance, these rugged helmets have been preferred by generations of firemen, the world over. With the CAIRNS SELF-ADJUSTING CUSHION LINING they afford the maximum of comfort as well as of protection and durabiliy. Write for Catalog 331 and price list of America's most complete line of firemen's equipment.

CAIRNS & BROTHER
Outfitters to Firemen Since 1836
(ALLWOOD), CLIFTON, N. J.

BODY-GUARD
BUNKER SUITS
FOR COMFORT & PROTECTION

WE ARE DISTRIBUTORS FOR
SIREN BOOTS

We have been supplying **FIREMEN'S CLOTHING** for over 25 years.

Any fireman can have a catalog by writing—

BODY-GUARD MANUFACTURING CO.
ST. JOSEPH - - MISSOURI

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

What's the Law Say About It?

Fire Chief Harry W. Knittle, of Kutztown, Pa., made the headlines when he went out to do a bit of high-power vocalizing.

Seems he hired a sound truck earlier this year to advertise his services.

Residents of the eastern Pennsylvania community were blasted for more'n two hours by the booming bellow of Chief Knittle advising them: "Your fire alarm system is burned out. If you have a fire or other emergency, telephone the Borough Building."

Knittle said the fire house caught fire while the Kutztown company was working on a blaze in a home 10 miles away. As the truck was returning home, firemen heard their own alarm siren shrieking. They speeded up and quickly extinguished the blaze, but the alarm system was burned beyond repair.

Incidentally, the top court of the country recently handed down a ruling on freedom of caterwauling—or in other words, permissible voice amplification. So, if this ruling is true, Chief Knittle was well within his rights. Some folks, however, are just mean enough to cavil against such caterwauling, even if it's in the interests of their own safety. (Credit, Irving Johnson.)

* * *

Oleander's Smoke Found Dangerous

The Florida Bureau of Narcotics disclosed in May that smoke from burning oleanders, a flowering plant, may cause heart attacks and even death.

The bureau coducted tests after a Sarasota, Fla., resident was stricken with a heart attack after inadvertently inhaling fumes from oleanders he was burning.

M. H. Doss, director of the state narcotics bureau, said the bureau's chemist made the tests on the plant, which exudes a poison known since the early days of Greece.

* * *

Transfusion Futile for Smoky

Efforts of blood-donor dogs to save the life of Smoky, 6-year-old Dalmatian pet of children of Grove Street, Irvington, N. J., and of the city's fire fighters, were futile when Smoky died of an unidentified ailment.

Smoky, mascot of Irvington Fire Company No. 3 for four years, received a pint of blood from Queenie, mascot of the neighboring Maplewood Fire Department while two other Dalmatians of other departments stood by, but he failed to rally. He had been ill since May.

* * *

Red Faced Red Shirts!

The faces of the volunteer firemen of Nescopeck, Pa., were very, very red, not s'long ago when fire broke out in the Nescopeck City Firehouse while the chief and nine of the vamps were in the structure.

Prevented by stifling smoke from entering the basement, where the blaze was centered, they ultimately were forced to flee the building. To add insult to injury, when they rolled out the fire trucks, they found the nearest fire plug "kaput"—inoperative. Resignedly, they called in three fire companies from nearby City of Berwick, Pa. (Wilbur A. March.)

* * *

Versatile and Ingenious Vols!

Many times Fire Companies are called for duties far removed from fire fighting.

Recently, the West Point Fire Company up in Montgomery County, Pa., received a call, and on arrival at the farm found no fire but that a cow had fallen down a well when the cover collapsed.

Getting a cow out of a well would prove a problem for even the smartest of firemen (ask a pal how he'd do it and see!) but the vamps of West Point knew the answer!

Hastily looping a rope around the cow's horns, they kept the animal's head above water, pumped water into the well until it was full and dragged old "Bossy" to one side when she was level with the ground. They then called a veterinarian who gave the cow "shock shots."

Come next sunrise "Bossy" was as good as new; producing the 24c a quart brand of cow juice—not to mention the $300.00 worth of meat on the hoof.

Can you tie this? (Nat Alexander.)

* * *

Hot Off the Ticker

Believe it or not, in Kansas City, Mo., a fire hydrant caught "fire." A feeder line fell across a crossarm on a trolley pole, causing a short circuit that generated heat down the pole to the fire hydrant (Irv. Johnson). . . . From Redding, Conn., comes report, via Tom Magner, that Fire Chief John Sanford Jr., of West Redding Volunteer Company No. 2, reported to State Police that the firehouse had been broken into on a Sunday and two hand extinguishers swiped from the truck. . . . A table radio in the home of John Cvelic, Union City, N. J., caught fire. As Cvelic snatched it up and ran toward the bathroom, he tripped; the radio shot into a clothes closet and set fire to his clothes. His daughter Catherine was burned trying to put out the blazing garments. His wife called the fire department. Cvenic and daughter were treated for burns. . . . In Oakland, Cal., Mrs. Hannah Dalton, 55, stepped on a match on the tile floor of her bathroom. The match exploded and set fire to a piece of paper. The paper ignited her dress. She died of burns. . . . Believe it or not, a yam that was bustin' out all over with calories was added to the list of household perils in Ravenna, Ohio. Mrs. Alfred Swauger will swear to the danger of baking "sweets." She recovered from injuries received when one of the tubers in her kitchen oven exploded and struck her in the face. . . . A jury in Passaic district court, in Paterson, N. J., awarded $2,500 to Richard Kiener, 45, for third degree burns from a hotfoot. Judgment was against an acquaintance who was alleged to have placed a match in Kiener's shoe and lighted it while Kiener was dozing in a tavern. . . . Out'n Sandy, Ore., a sawmill at nearby Cherryville fore-

sightedly called out the fire department when there was a waste pile to be burned. The fire truck arrived and the fire was lit off. Firemen used up 500 gallons of water in the booster tank of the truck trying to control their fire, but the flames roared on. The mill burned down—the firemen were "burned up." . . . In Chicago, Ill., a Greyhound bus collided with an egg truck and burst into flames. The bus driver directed his twenty-four injured and shaken passengers to safety through an emergency exit, where many were hospitalized for cuts, bruises and burns. The 90-gal. gasoline tank on the truck exploded and spread fire all over the front of the bus and cab of the truck. . . . It is reported that the Summit Hill mine fire in Pennsylvania has been burning since February, 1859. . . . Believe it or not, in Cherokee, Ia., a farm water tank full of water burned and was destroyed on Howard Fee's farm. . . . Film actor Jackie Cooper fashioned a rope of bedsheets to rescue his wife and two-year-old son when lightning started a fire in their summer home at Dennis, Mass. . . . Linden, N. J., citizens were startled by a series of explosions that lifted twelve manhole covers skyward when sewer gas was reported ignited by a spark. . . . The destructive power of fire was demonstrated in Dryden, N. Y., when the plant of the Cary Company, makers of clothing, the town's only industry, was damaged. . . . A Canadian fireman set fire to his pants when he set down on a packet of matches. However, he survived the experiences of the "hot seat." Moral—never sit down while you're on duty (or was he?). . . . In Bayonne, N. J., the garbage truck was headed for the city dump. A discarded wooden drawer was atop other refuse on the truck. Idly curious, the driver took a gander at the inside of the drawer. It held eight boxes. Neatly packed inside were 570 live rifle bullets. He called police who didn't toss the drawer into the city dump—which burns all the time. . . . In Harrison, N. Y., two Silver Lake lads who "wanted to be sure we didn't have a school to go back to this fall" set four different fires in the Underhill avenue school on a Sunday afternoon, causing $4,000 damage. . . . In Detroit, Mich., a love-sick swain took a nasty way to "get even" with his girl friend. Following an argument he soaked his auto with gasoline and made a torch of himself and car in front of the gal's home. He died; she was burned trying to save him. . . . It was a dull afternoon when Fire Chief Asa B. Wheerer hustled out in response to a telephone alarm. The blaze was in his own car! . . . This'un from Phoenix, Ariz., Carpenter J. McTaggert drove his car into a garage to keep it from getting too hot under the blistering Arizona sun. Ten minutes later the garage caught fire and was destroyed—and with it McTaggert's chariot (J. K.). . . . From Colby, Kans., comes report that the community's only piece of fire apparatus was destroyed in the burning of a garage in which it was stored. Firemen fought valiantly with a garden hose until help arrived from other towns. Have we said before—there oughta be a law again combustible firehouses? . . . Thirteen race horses valued at $50,000, and equipment worth $25,000, were destroyed when the Oakmont stables burned in Plattsmouth, Neb. Cause—lightning.

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Formula for Small Nozzles

To the Editor:

In answering the question submitted by J. P. T. in the June issue of FIRE ENGINEERING, why do you use the equation N. P. — E. P. ÷ (1 + KL)?

I would also appreciate your solving the following problem for me: An engine at 120 pounds pressure is pumping through a 300-foot line of 2½-inch hose branched into two lines of 1½-inch hose, each 300 feet in length and equipped with ½-inch nozzles.

What is the nozzle pressure on each nozzle?

What is the friction loss in this line of hose?

What will be the discharge?

Answer: In the equation for solving nozzle and engine pressures on lines involving small nozzles, we find that the formula N. P. = E. P. ÷ (1 + KL) gives more accurate results than the formula N. P. = E. P. ÷ (1.1 + KL).

As you may realize, all formulas for nozzle and engine pressures, as well as friction loss, are based upon experimental results.

The formula which gives results closest to experimental results is the one which is considered the most suitable.

For lines of hose with large nozzles, the original formula still holds.

In the problem you give for solution, the first named formula is used, for we have a nozzle of less than 1-inch in diameter.

The solution is as follows:

First reduce each line of 1½-inch hose to a 2½-inch. The conversion factor is .074.

300 ÷ .074 = 4054 feet of 2½-inch hose.

Now combine the two parallel lines of 2½-inch so secured into a single line of 2½-inch. The conversion factor is 3.6.

4054 ÷ 3.6 = 1126 feet of 2½-inch hose (single line).

Next combine the nozzles into a single nozzle.

½ × ½ = .25
½ × ½ = .25
.25 + .25 = .50
$\sqrt{.50}$ = .707

The nearest size nozzle to one of .707 inches diameter is ¾-inch.

For small diameter nozzles, the formula is:

N. P. = E. P. ÷ (1 + KL)
E. P. = 120 pounds
K = .042
L = 22.5
Then N. P. = 120 ÷ (1 + .042 × 22.5) = 61.7 pounds.

The nozzle pressure at each of the ½-inch nozzles is thus 61.7 pounds.

The discharge from a ½-inch nozzle at 61.7 pounds is equal to 29.7 × ½ × ½ × $\sqrt{61.7}$ = 58 gallons per minute approximately.

The discharge from the two nozzles is twice as much, or 116 gallons per minute.

The friction loss in 100 feet of 1½-inch hose carrying 58 gallons per minute is 12.2 pounds.

The friction loss in 200 feet will be two times 12.2, or 24.4 pounds.

The pressure at the wye will then be 61.7 + 24.4, or 86.1 pounds per square inch.

The friction loss in the single line of 2½-inch hose from the pumper to the wye will be 120 — 86.1, or 33.9 pounds.

Use of Factors

To the Editor:

In "Fire Service Hydraulics," for solving friction loss for siamesed lines, you use the value of K as .135. The Underwriters use 3.6 as the factor. In one of your problems on Page 73, Example 83, using 3.6, there's a difference of 20 pounds.

P. J. F.

Answer: The figure .135 is the value of K for two parallel lines of hose siamesed into a 1½-inch nozzle.

The factor 3.6 is the factor for reducing two parallel lines of 2½-inch hose to a single line of 2½-inch hose.

Thus the factors are for different purposes and are not to be used interchangeably.

In solving Example 83 on Page 73 of "Fire Service Hydraulics," by first reducing the two parallel lines of 2½-inch hose to a single line, and then solving as a single line, we get the following:

600 ÷ 3.6 = 166.67
E. P. = N. P. × (1.1 + KL)
Nozzle pressure is 60 pounds.
K for a single line of 2½-inch hose with 1½-inch nozzle is .505.
L, the number of 50-foot lengths of hose in the line, is 166.67 ÷ 50, or 3.33 lengths.
E. P. = 60 × (1.1 + .505 × 3.333)
= 166.98, or 167 pounds pressure.

You will note that this answer is but 4 pounds off the answer secured by solving for nozzle pressure using the factor of K for parallel lines siamesed into the nozzle.

Changing 1½-Inch to 2½-Inch Hose

To the Editor:

The ever increasing use of 1½-inch hose in fire fighting and salvage work has made it necessary to become familiar with the formulas used to solve problems involving the use of 2½-inch lines wyed into two or more lines of 1½-inch hose.

What are the factors for changing

two, three and four siamesed lines of 1½-inch hose into an equivalent length of 2½-inch? J. L. H.

Answer: Values for reducing various layouts of 1½-inch hose to a single line of 2½-inch hose may be secured by use of the conversion factor for 1½ to 2½-inch and the factors for the various layouts of 2½-inch hose.

For example, the factor for converting a single line of 1½-inch to a single line of 2½-inch hose is .074; this factor is also employed for changing 2½-inch to 1½-inch by multiplication.

The factor for changing two lines of 2½-inch to a single line of 2½-inch is 3.6; the factor for changing three lines of 2½-inch to a single line of 2½-inch is 7.75.

The factor for changing four lines of 2½-inch to a single line of 2½-inch is 12.4.

Then to find the factors for changing 1½-inch hose, in various layouts, to a single line of 2½-inch hose, we merely multiply the factor for the corresponding layout of 2½-inch by .074 and we get the factor for changing 1½-inch hose to 2½-inch for the various layouts.

From the above the factor for two parallel lines of 1½-inch hose for conversion to single line of 2½-inch is .266.

The factor for converting three parallel lines of 1½-inch hose to a single line of 2½-inch is .57.

The factor for converting four parallel lines of 1½-inch hose to a single line of 2½-inch is .92.

Opening Glass Doors

To the Editor:

I enjoy and find very helpful your magazine, but I would like to see something more on the subject of heavy glass doors, such as the experiences of various departments with the same.

E. P. McC.

Answer: So would the editors! There is a dearth of sound information on the question of opening the modern type thick glass and imitation (plastic) glass doors. Have any of our other readers run into this problem? And if so, what did they do about it?

Correction

In the July issue of this journal, under the heading "Carbon Dioxide in Extinguishers" on Page 468, the statement was made that the sealing of the valve in a squeeze-type carbon dioxide extinguisher was brought about by "expansion of a compressed spring."

It should be pointed out, however, that the popular squeeze grip valve in common use today utilizes the pressure from within the cylinder to prevent the discharge of liquid carbon dioxide when the extinguisher is not being used.

A spring is provided in the valve mechanism, whose purpose is to return the valve to its seat after using, but not to keep the valve sealed.

The editor is indebted to Captain Charles A. Key, US-TVA Public Safety Service, Tennessee Valley Authority, Knoxville, Tenn.; K. D. Wanless, District Manager, American-LaFrance-Foamite Corporation, Spokane, Wash., and Albert T. Hall, McAlester, Okla., for directing our attention to this discrepancy.

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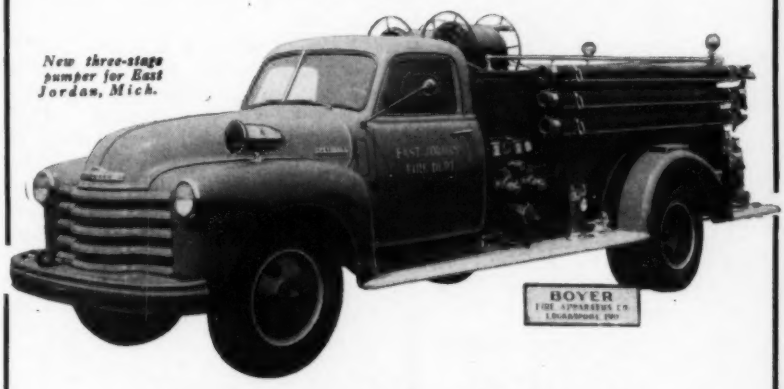

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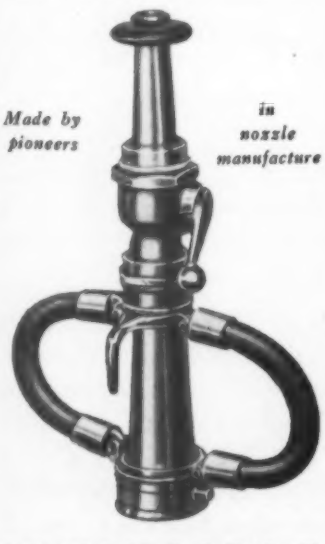

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For Practical Discussion of Current Fire Department and Fire Management Problems

WHAT CONTROLS FOR USE OF PAINTERS' TORCHES?

FIRE officers are in general agreement that the use of gasoline blow torches in paint removing constitute a hazard to life and property. They agree, further, that there should be some regulatory measures in communities to control the use and abuse of such products. A few chiefs would like to see blow torches outlawed completely; others recognize their need in paint removal and believe more carefully controlled operation would suffice. A very few report the number of fires from this cause as inconsequential and have no complaint.

Although there is widespread agreement on the advisability of some form of control and regulation there is not quite the same unanimity on the measures to bring this about. A few sceptics doubt that any workable controls can be set up, pointing to the fact that torches can be bought anywhere, by anyone, and to the difficulty in limiting their use by private citizens, on their own property.

Some chiefs who have studied the problem believe that the best method is to require issuance of permits for paint-burning. They do not differentiate between the painter or other commercial user and the private citizen. Nor do most of them suggest how it will be possible to check up on painters and painting jobs in a community. One chief suggests inclusion of a clause in insurance contracts to the effect that payment of loss would be withheld where fire was caused by use of a gasoline torch without a permit.

In addition to control by elimination of use, and by permit, control by license to operate is suggested. This, of course, applies only to the commercial painter. It will not apply to the homeowner or other itinerant user. One chief believes that even if it is impossible to regulate use by the latter means, it will be well worthwhile if the "wholesale" use of burners is regulated.

Readers are invited to send in their comments on this subject which will be continued in the October issue. Address communications to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of the Topic

Herbert F. Travers, Chief, Worcester, Mass.: In Massachusetts, control of fire damage caused by the practice of using torches of various types for the purpose of removing paint is through regulations issued by the State Fire Marshal. Our State has a Board of Fire Prevention Regulations whose function is to create such controlling regulations. At this time no such regulations exist.

I would say that we definitely should have regulations to control this practice. The type fire caused by painters' torches is such that high loss is sustained. The fire is a hidden one which works its way unnoticed for some time up through concealed spaces, inside exterior walls, and many times up into the attic before it is discovered. Much ripping out of interior finish, plaster, roofing and walls results with considerable damage to interiors.

In Worcester we have fires of this type on too many occasions and many of these fires get a good foothold because the painters attempt extinguishing them before calling for help. They do not realize that the fire has worked in concealed places and has extended to upper floors, into blind attics, etc.

I would suggest that a permit be obtained for each paint-burning job from the head of the fire department subject to such conditions as he may prescribe. Such conditions should include the requirements that adequate first aid extinguishing equipment be maintained on hand to put out incipient fires and should also include tools such as axe, hook and similar small tools. Hours for such burning should be regulated to provide against the hazard of loss of life to persons within

HERE IS THE TOPIC

1. **Do you believe that fire damage, resulting from painters using gasoline torches for paint removal, warrants some form of control by municipalities?**
2. **If so, what method of control would you suggest?**
3. **How would you control painters from out of town who do not do business regularly in your community?**

the structure. All painters be holders of a certificate of competency attesting that they have adequate knowledge of the hazards involved, knowledge of building construction, likelihood of fires from such practice, how to prevent the occurrence of fire, how to detect that a fire has started, what to do with the tools at hand and finally to realize the importance of promptly calling the fire department when needed.

Painters from out of town, being required to have a certificate of competency to work in their own community, would know that it was necessary to live up to the requirements of whatever other community they might enter to do their work. The conditions should be as nearly uniform as possible and only persons with a proper certificate should be allowed to do whatever burning is done in any community. This should bring about a much better understanding of the hazards of the work and result in reduced losses and fire occurrences from this dangerous practice.

Thomas H. Cotter, Chief, Providence, R. I.: I do believe a form of control is needed by municipalities to alleviate dwelling house fires caused by painters' torches. Inasmuch as there is no other means of removing paint as economically as a gasoline torch, I think it only fair not to consider its entire elimination which would be the easy way out as far as the fire departments are concerned, but to call a meeting of the insurance company heads and the painting contractors of a municipality together for the purpose of drawing up an ordinance which would call for the licensing of all painters who contract to paint dwelling houses or other non-fireproof buildings, therefore placing them under control.

It could be stipulated in the ordinance that any person causing fire to a building by use of a gasoline torch for the removal of paint, not holding a bonafide license, would be subject to a fine of five hundred dollars ($500), this would tend to eliminate the fly-by-night painter who generally causes this type of fire. I say this after having observed various painters at work.

The responsible contractor painting a house wants no part of a fire, therefore he will look for openings which allow fire to enter inner walls and secure them. In all other respects through past experience and his general knowledge of the painting business, it would tend to make him a safer person to handle a gasoline torch. I also believe a method to tighter control and which should be incorporated with the licensing of painting contractors would be to make it compulsory for painting contractors to secure a permit to burn paint off a building, with permits being issued only to licensed painters by the fire prevention bureau of their respective municipalities. The fire prevention bureau before issuing permit would notify the insurance company that the burning of paint was being contemplated on one of their holdings.

This method would consummate the following:

1st. The non-licensed painter would legally be eliminated from burning paint.

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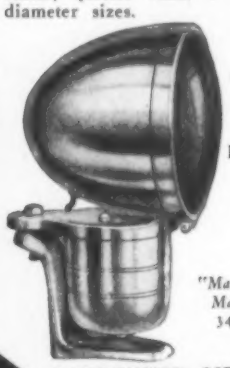

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of fire caused by the burning of paint could be agreed upon by the insurance company and the painting contractor, thus eliminating law suits.

It could also be made compulsory for all out-of-town painting contractors to become licensed in the municipality in which they intend to do painting, therefore the out-of-town painters would be compelled to comply with the laws of that municipality before the issuance of a license.

G. R. McAlpine, Chief, Oklahoma City, Okla.: The Fire Records in our City show an unusual number of fires are caused each year by removing paint, with blow torches.

I would suggest that the practice of removing paint with a blow torch be completely outlawed as being extremely hazardous, as borne out by Fire Department Records.

However, should a City not see fit to outlaw such practice, then, I would suggest that people or firms in the business of removing paint, and using the blow torch, be compelled by city ordinance, to obtain permits from the fire chief, or his constituted representative, and that such persons pay a fee for such permit, sufficient to justify inspection of the premises by a regularly constituted fire inspector.

An inspection will not eliminate the possibility of a fire, but it will have the effect of making some operators to realize the dangers of fire and maybe they will be a little more fire conscious. In some cases the permit would be denied due to hazardous conditions.

The people from out of the city would have to comply with city regulations, and failure to comply would mean a police fine, in addition to an inspection fee.

You can very easily regulate this business by city ordinance, but, as long as blow torches are used for removing paint, you will have the hazard of fire, and you will have the fires directly attributed to this paint removing by blow torch.

I, for one, believe the answer to this problem, is to outlaw it, as being extremely hazardous.

Clyde Dunn, Chief, Omaha, Neb.: While it is true that the removal of paint, by the blow torch method, constitutes a constant potential hazard we do have very few fires caused by this practice. A check of our records shows that we will not average six such fires a year and that at least four of these six will be the result of a non-professional painter burning off the paint on his own home.

I believe that the average professional painter is well aware of the seriousness of such a practice and, generally, exercises care in the use of the blow torch. In fact, many such professionals are now using electric sanding machines instead of the blow torch wherever feasible, or in hazardous locations.

I do not believe that in our city, legislative controls are called for. In the first place it would be difficult to enforce on either the non-resident or resident painter unless a permit system, backed by adequate inspection and enforcement, was in effect. Even this would not govern the work done by the individual on his own home and he is apt to be more of a problem than the professional painter.

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You can see better — up, down and to either side with the Acme Full-Vision FD Gas Mask. This means greater protection. Acme's exclusive Dead Air Check Valve limits the amount of carbon dioxide the wearer rebreathes. Again, greater protection. Acme's FD Canisters protect against smokes, fumes, dusts, mists and gases.

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HEAD-MASTER
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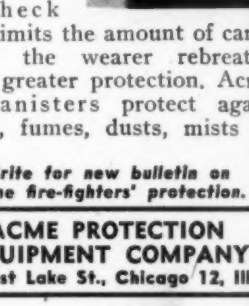
Union Made **Prompt Delivery**



Wentworth Fireman Caps are made of the Highest Quality Standard Materials available. They are made in all the New and Standard styles by the Best Skilled Union Craftsmen. Over 50 years of experience and skilled workmanship guarantees you AMERICA'S GREATEST CAP VALUE in all WENTWORTH FIREMAN CAPS.

Write direct for latest circular and prices or see your local dealer.

AMERICA'S UNIFORM CAP HEADQUARTERS

WENTWORTH-FURMAN CO. INC.
MANUFACTURERS
21-25 EDINBORO ST. BOSTON, MASS.

ucational channels we strive to reach both the professional and the non-professional painter as to the nature of the hazards involved and to set forth acceptable safe-practices to be followed. Locally, this seems to be bearing fruit and I believe is sufficient to control the problem.

Thomas J. Phelan, Chief, Trenton, N. J.: The fire damage, resulting from painters using gasoline torches for paint removal in this City, is negligible. We had six such fires in 1947. There is a danger in this process, but I see no way to control same, except by ordinance prohibiting such procedure, and I believe same would be very difficult to enforce.

As far as controlling painters from out of the town, the only way, I know, would be to license same and this, in my opinion, is somewhat farfetched.

Henry G. Thomas, Chief, Hartford, Conn.: Over a period of years we have had a number of fires, some of them serious, resulting from the use of gasoline torches to burn off old paint from frame buildings.

Most of these fires occurred when the burning was done on clapboard or, shingle siding. The sparks get into hidden areas where fire starts, often unnoticed by the careless workman.

Where extra precautions are taken by careful workmen, such as only burning on a solid side, keeping away from the cracks and joints and having a hand extinguisher or water hose readily available, the hazard is minimized.

Where we know the paint burning is to be done, our Fire Prevention requires these restrictions.

The practice is admittedly hard to control. It would seem desirable and reasonable for the City to require a permit for this type of work and hold the contractor liable for any damage from fire that might be caused by himself or, his workmen.

That most of our fires are caused by human carelessness is well known and it is quite likely that the day will come when the person having such a fire will be called on for an explanation. If the average person were made to realize that he or she might have to suffer the costs of their own carelessness, we would have fewer such fires.

A start might be made by inserting a clause in all fire insurance policies to the effect that payment of loss would be withheld where the fire was caused by the use of a gasoline torch to burn off paint, without a proper permit.

George E. Hare, Chief, Jacksonville, Fla.: Jacksonville is undoubtedly fortunate in this respect, for conditions are such that there is very little use of these torches for paint removal, and I do not recall a single instance wherein the cause of fire might be laid to the same.

However, control of same could easily be set up by the passing of local ordinances forbidding the use of the torches by local or itinerant painters.

Charles A. Gill, Acting Chief Engineer, Philadelphia, Pa.: I do not believe there is any control that can be set up in municipalities as to the use of gasoline torches as they are used by professional painters and novices as well. Anyone can purchase and

For Flexible Performance

Specify HALE

Flexibility of Performance is a notable characteristic of Hale multi-service Centrifugal Fire Pumps. Operated in Series for pressure . . . and in Parallel for volume, they are quickly and easily adjustable to a wide range of fire fighting conditions.

They are highly efficient and dependable pumps . . . built in all standard capacities, designed for use with modern engines.

At left—Hale Multi-service Type ZL Centrifugal. Underwriters' rating 500 GPM.

Be sure to see the multi-stage Hale Pumps on display at the Miami Convention on November 8th, booths 43 and 44.

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Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY

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We can now supply old type ¾ Length and Knee Length Felt-lined Firemen's Boots.

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JANESVILLE, WIS.

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Double Male	$2.00
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2½" x 2½" x 2½" Clapper Valves, all N.S.T.	$3.50
Roof Ladders	$30.00
Hose Straps	$1.25
Spanner Wrenches	$ .25

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FRANK SHORTNER
Edgar, Wisconsin

AGENTS WANTED

Firemen with selling experience to sell a high grade line of fire protection equipment and fire department supplies in your vicinity. Full or part time. Commission basis. Give complete information in your letter concerning the experience you have had and references. Box 55, c/o FIRE ENGINEERING, 24 W. 40th St., New York 18, N. Y.

FOR SALE

Mack AB City Service Ladder Truck in good condition. Life net, 191 ft. of ladders, 40 gal. chemical tank CO-2 converted and standard equipment. Replacing with aerial truck. TOWNSHIP OF MORRIS, David Scott, Clerk, Morristown, New Jersey.

FOR SALE

American-LaFrance Pumper—1914, completely rebuilt in 1935, 750 GPM, rotary type pump, 35 gallon booster tank with 200 ft. chemical hose, 1—18 ft. wooden extension ladder, 1 suction hose, carries 1000 ft. 2½" and 750 ft. 1½" hose, pneumatic tires; paint, engine and pump in excellent condition. Make offer to BOARD OF FIRE COMMISSIONERS, PELHAM FIRE DEPARTMENT, Fire Headquarters, 5th Avenue, North Pelham, New York.

FOR SALE

Palm Fiber Fire Broom. The Best "Fire Fighter" for Field Fires. Selected for its flexing and fire resisting qualities. Metal bound at head. Unexcelled for sweeping field fires. Made by the makers of the original fire broom. No. 62F Palm Fibre Fire Broom in lots of six or more, each $1.50. S. Ervin Diehl, Jr., 1229 N. Second Street, Philadelphia 22, Pa.

REPRESENTATIVES

Representatives wanted in states of Alabama, Connecticut, Georgia, Indiana and Rhode Island by large Fire Hose Manufacturer. Attractive proposition to offer for distribution of its Fire Department Products. Experienced individuals or established Fire Equipment Distributors preferred. Reply by mail, giving full particulars. All letters held confidential. H. O. Meier, QUAKER RUBBER CORPORATION, Tacony & Comly Streets, Philadelphia 24, Pa.

ATTENTION—FIRE DEPARTMENTS

Unused Rubberized Jackets, Gov't Surplus, Olive Drab Color, 100% Waterproof, 34 Inches Long, Sizes 42-44. Special $2.98. Worth Double.

Also, Fireman Turnout Coats, O.D. Color, Unused—Removable Wool Lining. $14.95. Plus Postage.

For circular, Write: M. WENTZ, 160 Bush Street, Bronx, N. Y.

FOR SALE—NEW PUMPER

48 Ford F-7 145 HP, with 500 gpm two stage hi-low pressure to 500# double booster lines twin reels, hi-pressure booster hose, 3 suction 500 gal. tank, other standard equipment. New York State only. Delivery October 1st. Inquire Box 85, c/o FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

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Firemen with selling experience full or part time on commision basis. By Factory Method Reconditioning Specialists, worn and torn rubber boot uppers ordinarily ready for discard, can now be repaired as good as new by approved "Factory Methods" at a fraction of the cost of a new pair. Reply by mail giving full particulars. All letters held confidential.

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(Formerly Godfrey Repair Service)
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WANTED

Fire Equipment Dealers to sell Morning Pride protected rubber firecoats, fire pants, fire mitts and fire suspenders.

Write today Morning Pride Mfg. Co., 1986 Home Ave., Dayton 7, Ohio.

FOR SALE

1940 Chevrolet Fire Truck
500 GPM Front Mount Champion Pump
W. S. Darley Equipment
200 Gal. Booster
AUBURN HEIGHTS FIRE DEPARTMENT
Att.: Carl Schingeck, Box 13
Auburn Heights, Michigan

FOR SALE

1,000 gal. American-LaFrance pumper in excellent condition, reasonable. FRIENDSHIP ENGINE & HOSE CO., Merrick, N. Y.

FOR SALE

American La-France 750 Gal. Pumper, in good condition, now in service to be replaced by new American La-France Pumper, Booster Tank, 2 lengths hard rubber and 1 length of soft suction hose, for complete information write PLEASANTVILLE FIRE DISTRICT, c/o Fred C. Kipp, Secretary, Pleasantville, N. Y.

FOR SALE

One Cardax Unit, pressure 200 lbs., 100 ft. of ¾" hose; 4 wheels 16" diameter; space 50" x 76" x 4'6" high; total weight 2000 lbs.; net weight CO-2 750 lbs. Purchased the middle of 1946, is in good condition. For further information contact J. B. JONES, PURCHASING DEPARTMENT, PROCTER & GAMBLE CO., Gwynne Bldg., Cincinnati, Ohio.

WANTED

An aggressive sales distributor for popular line of fire apparatus. Franchise affords excellent earnings. Write us your qualifications and territory preference. Address Box 90, c/o FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

FOR SALE

1 qt. Pyrene fire extinguishers complete with bracket and charge $9.60.
1½ qt. Pyrene fire extinguishers complete with bracket and charge $12.00.
2½ gal. Soda & Acid extinguishers complete $20.00.
2½ gal. Foam extinguishers complete $22.00
1 qt. Pyrene Liquid, 20 to case—$22.00 case.
1 gal. Pyrene Liquid, 4 to case—$14.00 case.
2½ gal. 2 solution foam charge, 6 to case—$8.50 case.

All prices FOB Utica, N. Y. 2% discount if cash is sent with order.

Write for special discounts allowed to Departments wishing to sell extinguishers to community, as fund raising program.

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Unused Navy Surplus Sets, Chemical Type, Self-Generating. Top Brand. Complete with Mask, 7 Replaceable Canisters, Book, and Repair Kit. Fresh and Perfect, $31.50.

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FOR SALE

Mack Pumper, 1929 Model, 750 GPM Hale pump, new tires, full size hose body, in perfect condition and in active service. Demonstration on request. CHELTENHAM FIRE CO. #1, Cheltenham, Penna.

WANTED

Dealer—Distributors to sell fire apparatus manufactured by well-known Mid-West Factory. Prompt delivery. Attractive proposition. Address Box 30, FIRE ENGINEERING, 24 West 40th St., New York, 18, N. Y.

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You can't beat this value any place.

1½" DOUBLE JACKET, CRL, 50 ft. lengths. Top Brand. Fresh, Unused Surplus in good condition. Lightly storage soiled. Guaranteed high test and undamaged. Only 20c per foot or $10.00 per length including brass I.P.T. couplings. With N.S.T. or other couplings, $12.50.

ALSO

2½" S.J. Hose, 50' N.S. Perfect	@ $25.00
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1½" Fog Nozzle & 6' Applicator	@ $13.50
2½" Fog Nozzle & 12' Applicator	@ $19.50
Siamese Y Valve, 2½" to Pr. 1½"	@ $ 9.00
Playpipe, Shut-Off, & Tip, 2½"	@ $18.00
1½" Foam Nozzle & Pick-Up Tube	@ $11.50
1½" Linen Hose, 50' I.P. Perfect	@ $10.00
1½" D.J. Couplings, Brass I.P.T.	@ $ 1.00

Many other items at 25% of list. Write us. "DOLLARS THIN? — WRITE HALPRIN!"

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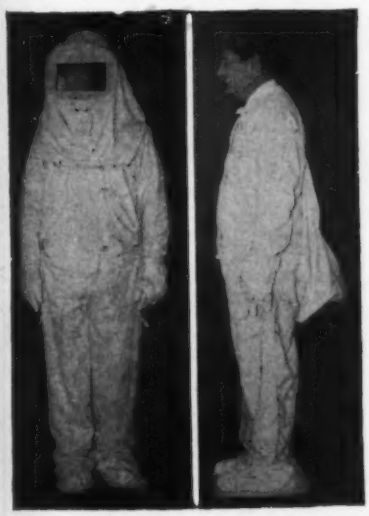

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Complete with Safety Helmet

A definite necessity in every modern Fire Department. One piece—adjustable to almost any size. Specially treated for oil and gas fires!

Unused—U. S. Navy —Spec. No. N-37-S-10.

Price $16.81 per suit

or 4 for $15.81 each F.O.B. Newark

Your Department isn't complete without these suits.

LITTLE TRADING CORP.
153 No. 12th Street, Newark, N. J.

use them for many uses, but I do say owners of same and those who use them can be made conscious of their dangers. This can apply to the professional painter, as well as the novice, through education.

The educational program to be carried on by the manufacturer of the gasoline torch, through a pamphlet issued with the torch when bought, or published in some magazine of popular issue, or a metal plate placed on each torch with the hazards to be encountered when using same, should consist of the following:

Use only white gas in this torch.

Do not refill while torch is hot or burning.

Do not make repairs to this torch while it is filled. Empty before making repairs—make sure there are no leaks around connections before lighting.

After filling, wipe off all excess gas before lighting.

Refill outdoors whenever possible and keep away from inflammable materials.

When used to remove paint do not use torch near a hole or opening in the wood or metal as there may be a bird's nest in same which you cannot see.

Remove all dust from horizontal surfaces above where you are burning.

Where wood has become decayed or rotten do not burn.

If you leave the torch, put it out. Do not leave it for a second out of your sight while *lit.*

Fire Prevention Brochure

To further Fire Prevention Week, Oct. 3 through 9, 1948, the National Board of Fire Underwriters is distributing 150,000 brochures entitled "You Can Help Stop Fires," to trade associations, Grand Masters and secretaries of state granges, county farm agents, state insurance commissioners and fire marshals, credit men, adjusters and to 11,000 presidents of women's organizations.

With the colorful publication, which offers suggestions on how to form a local Fire Safety Committee, is enclosed an order blank listing 27 different Fire Prevention Week supplies which may be distributed free to the press and radio, television stations, magazines, schools, fire chiefs and others. When unfolded, the brochure reveals a reproduction of the official F. P. Week poster, featuring the "Fifty Horsemen—Fire!"

Chief Moore Heads North Carolina Firemen

George W. Moore, Chief of the Greenville, N. C., Fire Department, was elected President of the North Carolina State Firemen's Association at the 61st annual convention held at Fayetteville, N. C., August 11, 1948. He succeeds J. C. Fitzgerald, Chief of the Ashville, N. C., Fire Department.

The convention was attended by delegates representing 170 of the State's 206 fire departments. "State Fire Chief" Sherwood Brockwell reported the Association is backing two objectives in the 1949 General Assembly of the Tar Heel State: Continuance of the law enacted in 1947 concerning fire safety regulations in hotels; and enactment of provisions extending benefits of occupational diseases incurred by firemen in line of duty.

D. G. SPENCER

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BADGES
CAPS
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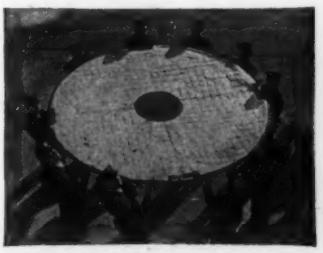
Manufacturers of uniforms for over 50 years

Official Makers of Uniforms for New York City Fire Dept. and Serving Other Departments From Coast to Coast.

RUSSELL UNIFORM CO.
1600 Broadway, New York 19, N. Y.
Write for
Fire Dept. catalog No. G-57

In the Fire Service—
THERE'S NOTHING "JUST AS GOOD"

That's why we want you to inspect the ATLAS LIFE NET at booth 18, I.A.F.C. Conference in Miami. See this modern piece of equipment and let us demonstrate proper net evolutions.



ATLAS SAFETY EQUIPMENT CO., INC.
27 WARREN ST. NEW YORK 7, N. Y.

How Long Is a Second?

Fire Action Demands . . . Fast Action . . . Planned Action. 1/60th of a minute can be a mighty long time. It's got to be used to the fullest . . . it's got to be backed up by equipment planned for the job—to do that job RIGHT on time.

The Elkhart Rocker Lug Type Coupling is planned for the job. Note these features . . .

Plate R329

- **Higbee Thread Indicator on lugs.**
- **Higbee Non-Cross Threads.**
- **Free Swiveling.**
- **Sliding Round-eared lugs.**
- **Durable Heavy Bronze construction.**

When ordering Fire Hose, Specify Elkhart Rocker Lug Type.

FIRE FIGHTING EQUIPMENT

ELKHART

BRASS MANUFACTURING CO.

ELKHART . . . INDIANA

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SEPTEMBER, 1948

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MATCH YOUR BREATHING HAZARDS WITH . . .

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OXYGEN BREATHING APPARATUS

For complete respiratory protection in unbreathable air—in choking smoke, poisonous gases, oxygen-lacking atmospheres—use CHEMOX! This comfortable, easy-to-use apparatus *makes its own oxygen* as you breathe, with a replaceable chemical canister . . . weighs only 13½ lbs. complete . . . no high-pressure cylinders, valves or fittings . . . delivers a full forty-five minutes' service time under hard physical work. Write for the facts in Bulletin B-14!

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All-Service

GAS MASK

In air contaminated with smoke or gases, but containing 16% or more of oxygen, this famous gas mask provides protection recognized everywhere for dependability and simplicity. Lightweight harness allows full working freedom—All-Service canister is quickly replaceable. Bulletin EA-8.

½ HOUR SERVICE FOR OXYGEN DEFICIENCIES, GASES AND SMOKE

M·S·A

Demand Mask

Supplying compressed oxygen or certified pure air from back-carried cylinder to the facepiece, the M.S.A. Demand Mask protects the wearer in toxic or oxygen-deficient atmospheres for a period of one-half hour. Bulletin B-16.

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750 g.p.m. FWD Pumper — equipped with FWD safety cab.

PLUS Power and Traction — Greater Speed With Increased Safety in FWD Four-Wheel-Drive Modern Fire Fighting Equipment

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There's no time for the "long way there" when lives must be saved and property protected. With FWD fire trucks, you take the shortest route, because you know *you'll get there* . . . because you'll get there *fast.* FWD's four driving wheels get you started quicker . . . pull you up steep grades without losing speed . . . hold your course better. And where the going's tougher — with back wheels pushing and front wheels pulling you'll drive through hub-deep mud or sand . . . through snow that's over the bumper . . . over terrain where only FWDs can go. *Write for literature describing great new FWD fire trucks — triple combination pumpers in 500, 750 and 1000 g.p.m. capacities, and the F-50-R designed expressly for rural fire fighting.*

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Canadian Factory: KITCHENER, ONT.

You're Sure to Get There with an FWD